CORESO Engineers ***North :*** BROUTA Karl ***South :*** KESRAOUI Mickael	**Day Ahead report for** **04 January 2018**

Security Levels:

CWE: No critical constraint detected.

CEE: No critical constraint detected.

CSE: Critical constraint detected on Albertville - Grande Ile 3 and internal constraints on 220kV grid in the same area that are manageable with topological measures.

Key overall conditions

Outages table

Exchange program forecasts

ELIA expected flows & PSTs tap position

CEE Renewable Power Generation & Forecast

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

RTE flows on cross-border lines

N state flows at 10:30 and 19:30

Special topologies at 10:30 and 19:30

North analyses results

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

South analyses results

N state flows Off-Peak & Peak

Special topologies

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

Conclusion

Key overall conditions

Load & Generation margin forecast			Main generating units connected to the grid in DACF				
ELIA			Elia	Doel	Pmax (MW)	1000	**1**	1900
						450	2	
Peak load [MW]	10 700	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]	68 600	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]	46 300	17:00		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]	43000	18:30		Cruas		900	**3**	2700
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:

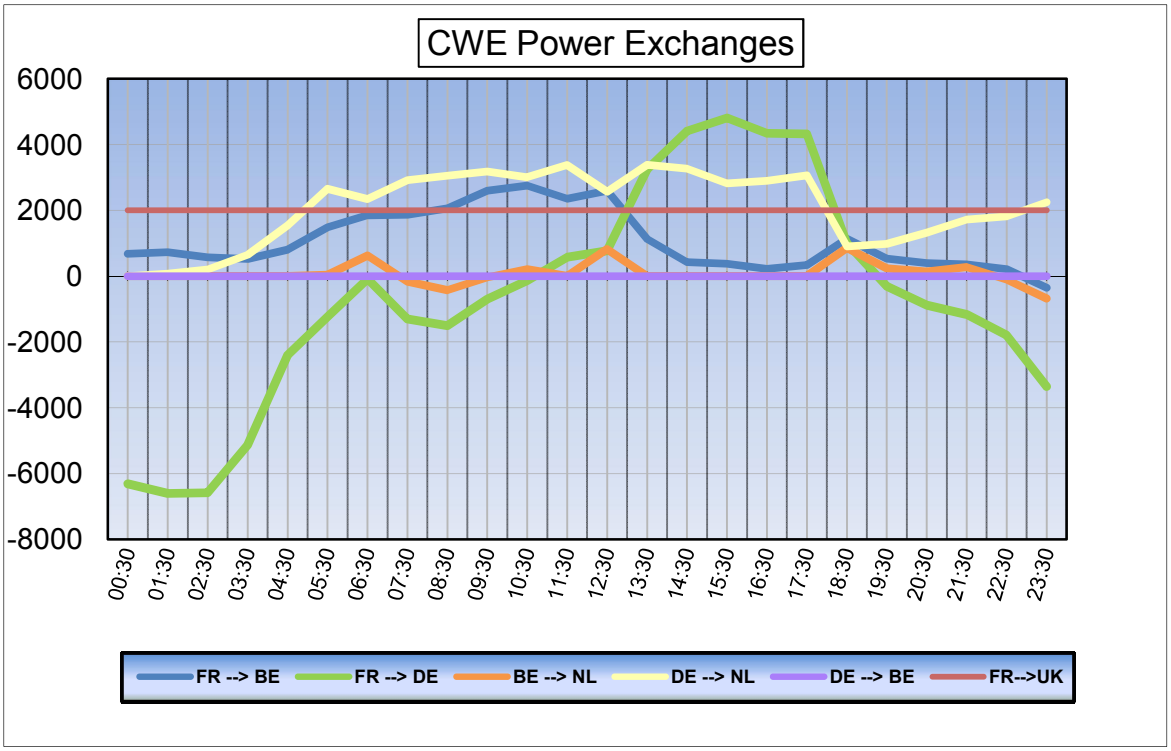
ELIA: Schifflange PST is in outage tomorrow

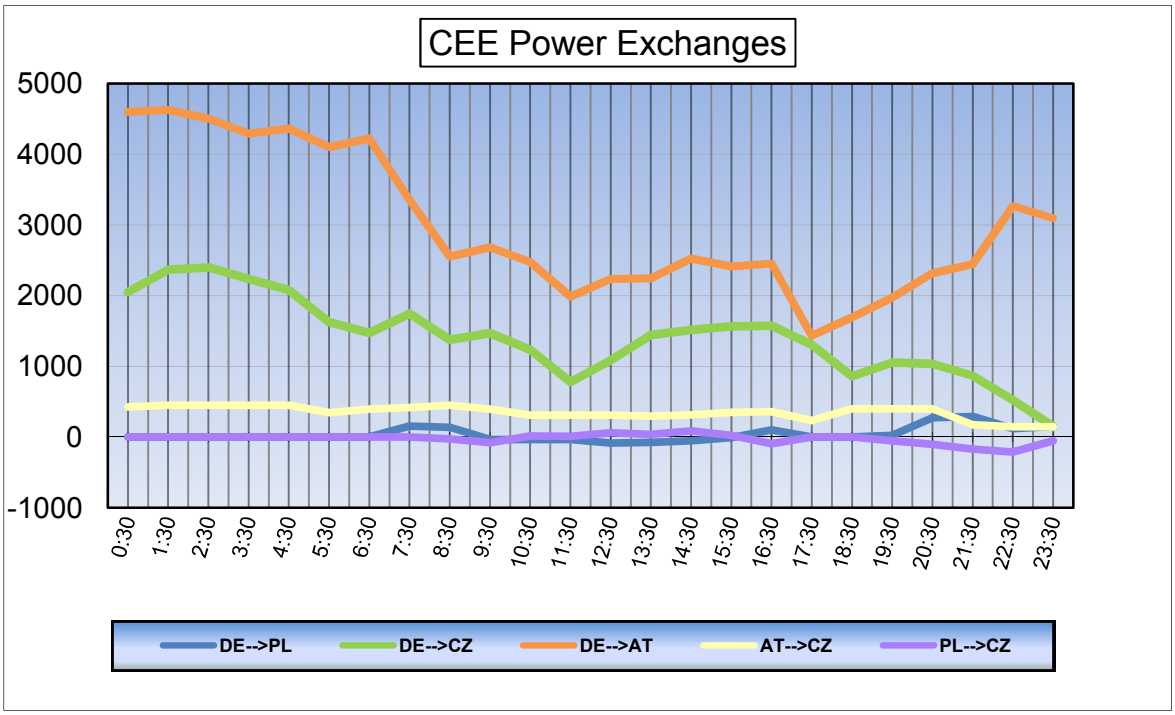
CSE CWE / CEE

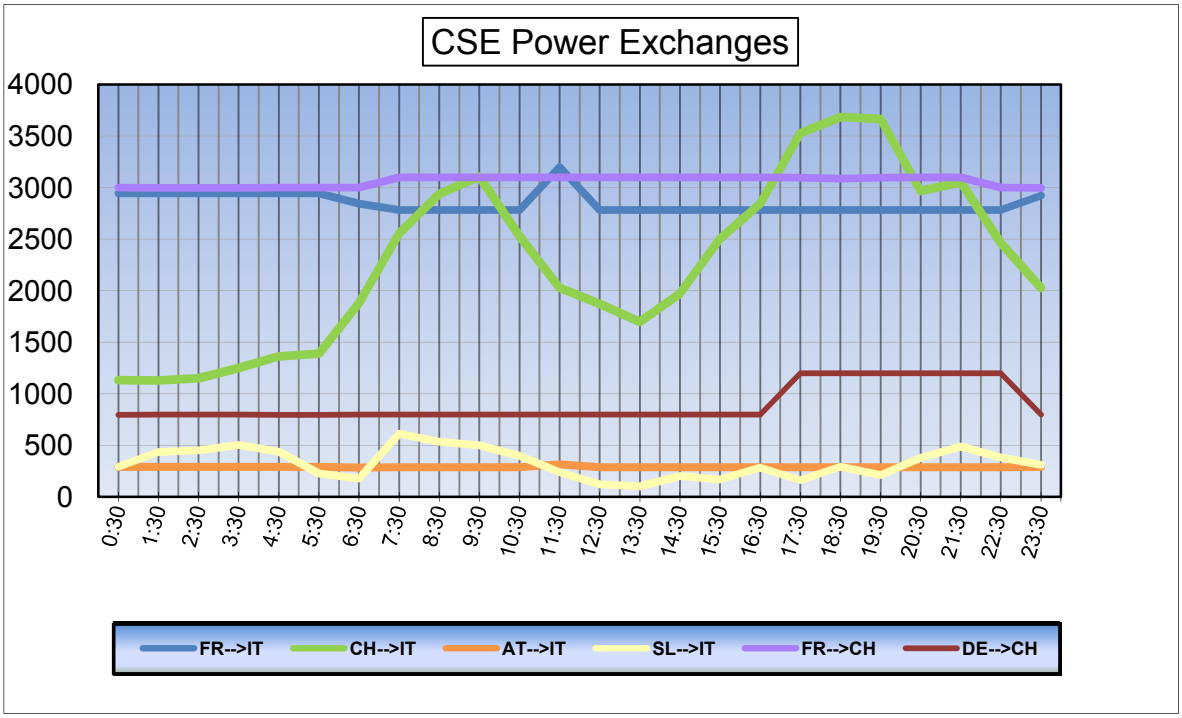
Outages table

OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Fossil.Gen	BOXBERG _ UNIT R 400 kV	24/12/2017	04/01/2018	630 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit F 400 kV	04/01/2018	04/01/2018	160 MW
50HzT	Line	GUSTROW _ PASEWALK 315 220 kV	04/01/2018	04/01/2018	Daily
50HzT	Line	GUSTROW _ WESSIN 424 400 kV	04/01/2018	05/01/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	04/01/2018	04/01/2018	Daily
50HzT	Line	WOLMIRSTEDT _ WUSTERMARK 494 400 kV	24/12/2017	07/01/2018	
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
APG	Line	TAUERN _ PST 220 kV	14/12/2017	15/01/2018	
CEPS	Generation	MELNIK _ UNIT 400 kV	04/11/2017	31/01/2018	
ELES	Line	MARIBOR _ PODLOG 400 kV	04/01/2018	05/01/2018	
ELIA	Line	GEZELLE _ STEVIN 111 400 kV	19/09/2017	26/01/2018	
ELIA	Line	GEZELLE _ STEVIN 112 400 kV	19/09/2017	26/01/2018	
ELIA	Nuc.Gen	DOEL _ Unit 3 (1000MW) 400 kV	23/09/2017	16/04/2018	Forced outage
PSE	Fossil.Gen	TUROW _ Unit 2 225 kV	01/03/2017	12/01/2018	
PSE	Line	BYCZYNA _ TUCZNAWA 400 kV	04/01/2018	04/01/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	03/01/2018	05/01/2018	
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	03/01/2018	05/01/2018	
RTE	Line	BARNABOS _ TERRIER 1 400 kV	18/12/2017	05/01/2018	
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	LIMMERN _ TIERFEHD 1 400 kV	28/01/2017	31/07/2018	
S.GRID	Nuc.Gen	BEZNAU _ BEZNAU G11 220 kV	13/03/2017	28/02/2018	182 MW
S.GRID	Nuc.Gen	BEZNAU _ BEZNAU G12 220 kV	13/03/2015	28/02/2018	182 MW

Exchange program forecasts






CSE Power Exchanges
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	02:30	03:30	05:30	07:30	09:30	10:30	12:30	17:30	18:30	19:30	22:30	23:30
BE	FR	ACHENE	LONNY	380.19	452	343	-204	-45	-293	-375	-425	-390	-115	61	236	467
BE	FR	AUBANGE	MONT ST MARTIN	220.51	30	16	-124	-92	-112	-123	-143	-78	-11	-4	45	60
BE	FR	AUBANGE	MOULAINE	220.51	26	9	-124	-98	-114	-125	-141	-80	-16	-8	39	55
BE	FR	AVELGEM	AVELIN	380.80	636	420	-486	-541	-885	-983	-964	-911	-426	-99	-46	237
BE	FR	AVELGEM	MASTAING	380.79	191	104	-325	-399	-657	-705	-690	-611	-397	-251	-133	14
BE	FR	MONCEAU	CHOOZ	220.48	-64	-83	-208	-232	-255	-267	-261	-235	-181	-135	-143	-99
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-583	-496	-289	-470	-386	-307	-151	110	-68	-183	-386	-544
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-565	-408	67	-17	191	336	608	1012	668	411	76	-215
BE	NL	ZANDVLIET	BORSSELE	380.29	-366	-276	-33	-313	-428	-408	-250	-118	-359	-494	-150	-229
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-332	-157	293	171	309	419	645	954	623	407	140	-74
BE	LU	BELVAL	SCHIFFLANGE	220.511	0	0	0	0	0	0	0	0	0	0	0	0

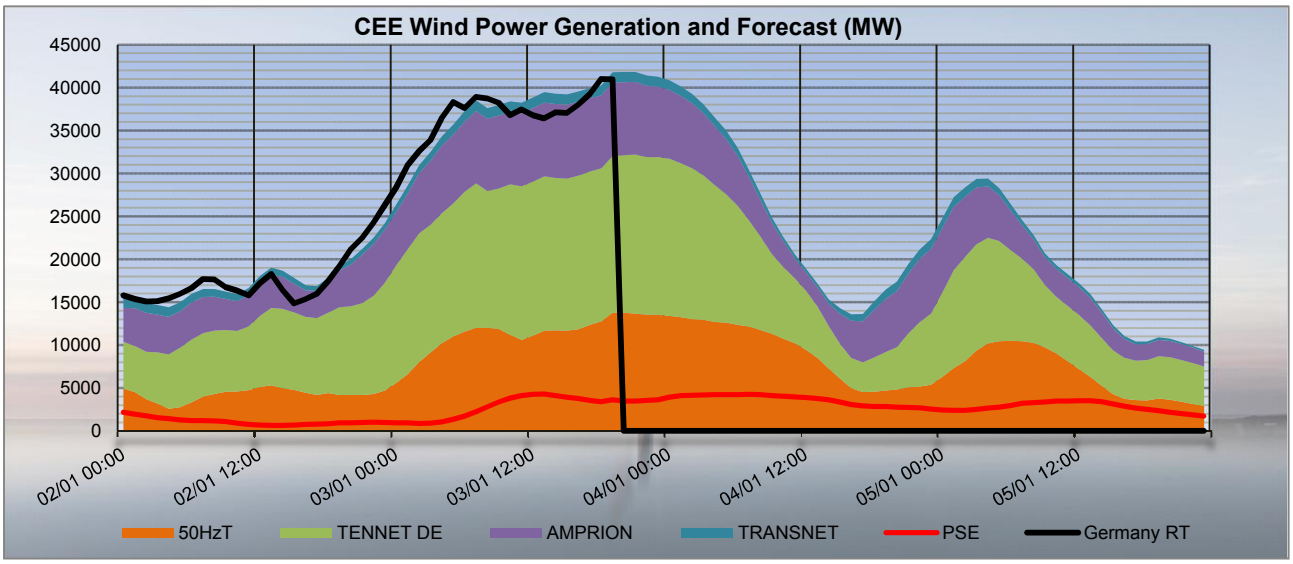
BE	FR	TOTAL		1271	809	-1471	-1407	-2316	-2578	-2624	-2305	-1146	-436	-2	734
BE	NL	TOTAL		-1846	-1337	38	-629	-314	40	852	1958	864	141	-320	-1062
BE	LU	TOTAL		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BELGIAN IMPORT/EXPORT				-575	-528	-1433	-2036	-2630	-2538	-1772	-347	-282	-295	-322	-328

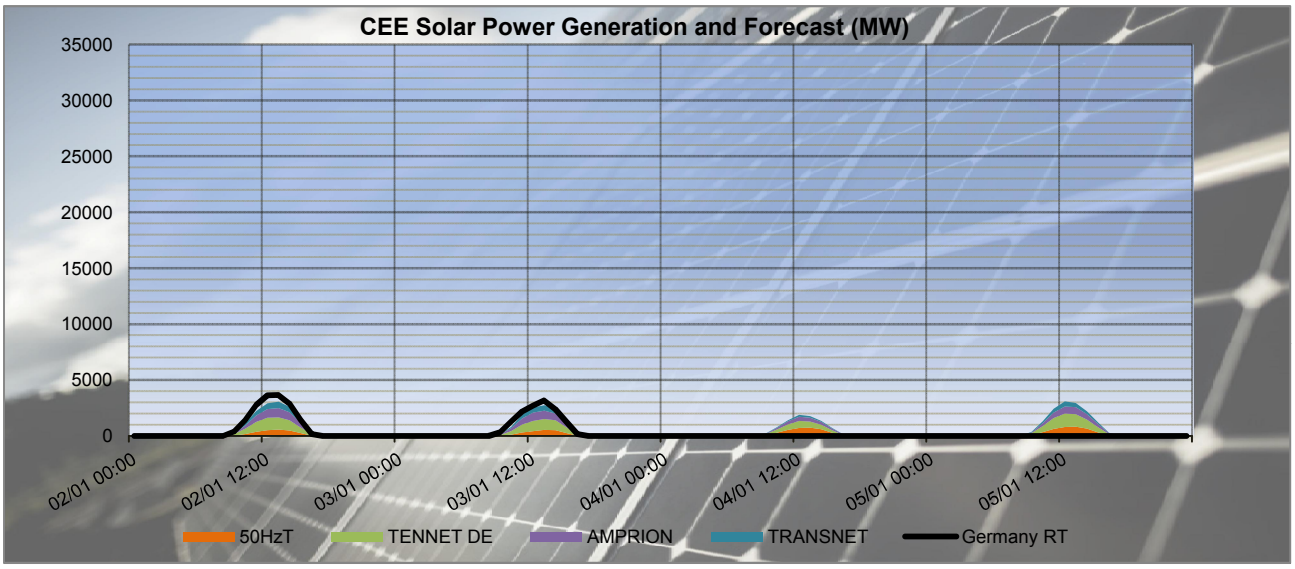
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	14	14	14	14

CREOS PST in DACF	**Schifflange**	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT

Proposal for real time after D-1 studies																								
Timestamps		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
PSTs																								
Zandvliet PST 1	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Zandvliet PST 2	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Van Eyck PST 1	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Van Eyck PST 2	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Schifflange PST 1	**[1;35]**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

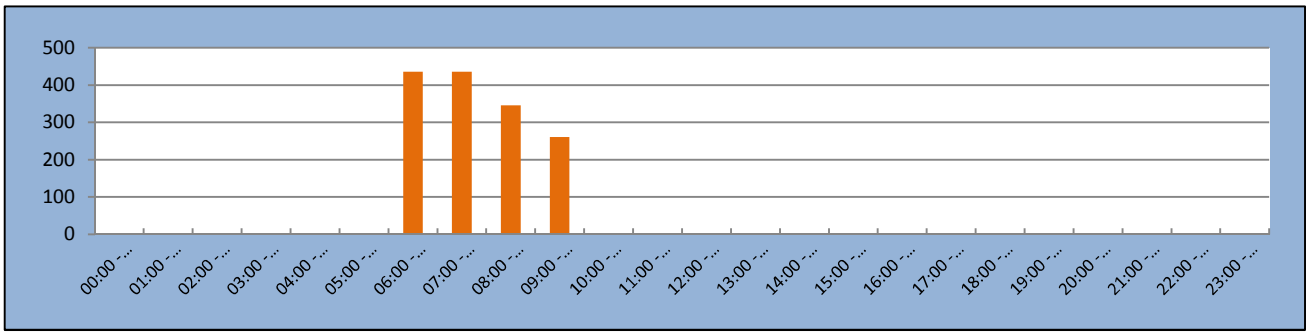
CEE Renewable Power Generation & Forecast



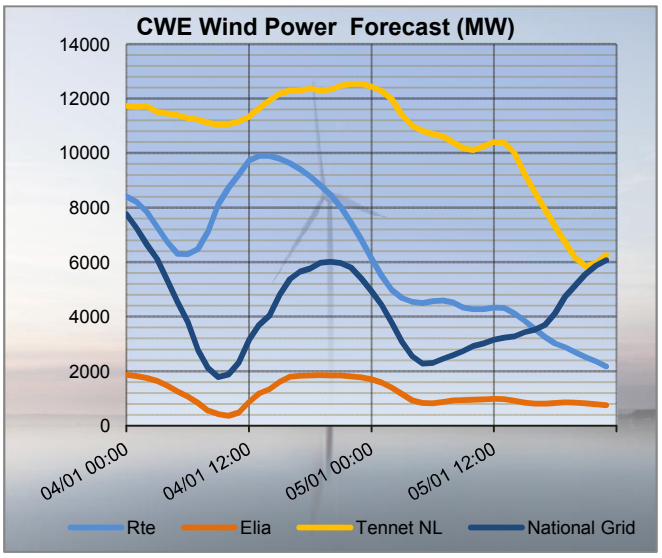


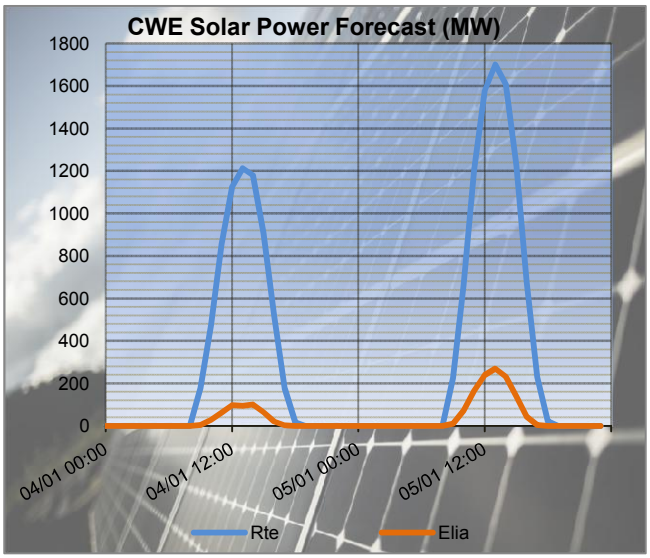
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

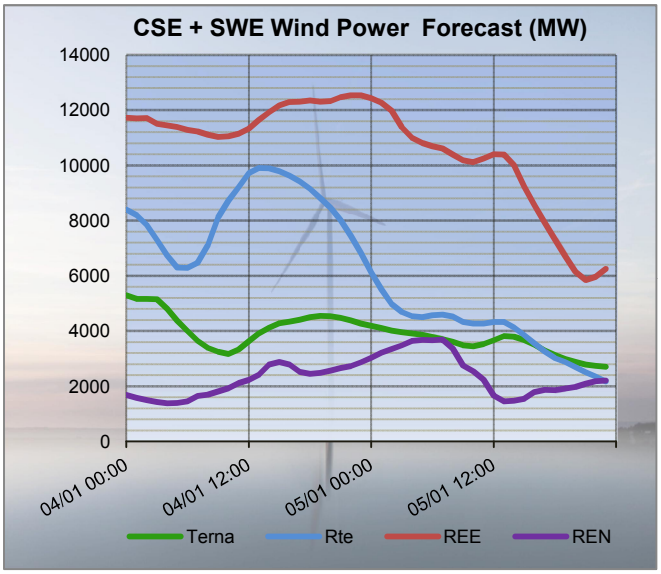
50HzT Preventive Redispatch

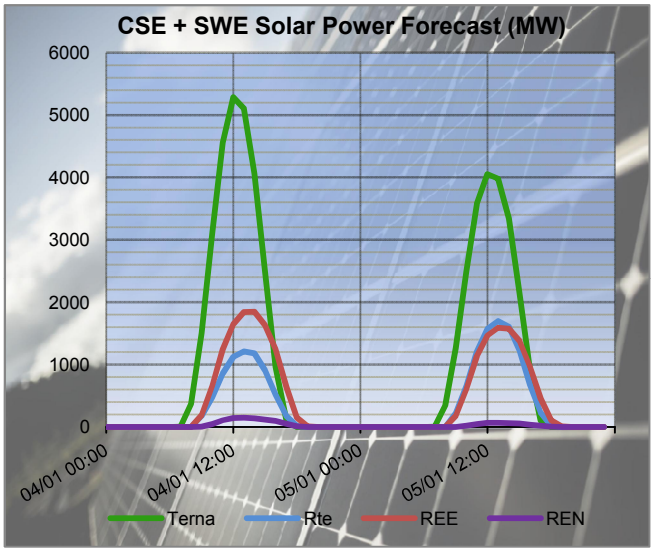


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	-223	-343	-120	318	45	**-273**	564	375	-189	464	425	-39
FR	BE	MONT ST MARTIN	AUBANGE	113	-16	-129	142	92	-50	80	123	43	64	143	79
FR	BE	MOULAINE	AUBANGE	112	-9	-121	145	98	-47	84	125	41	65	141	76
FR	BE	AVELIN	AVELGEM	-282	-420	-138	751	541	-210	1217	983	-234	1090	964	-126
FR	BE	MASTAING	AVELGEM	-14	-104	-90	543	399	-144	878	705	-173	801	690	-111
FR	BE	CHOOZ	MONCEAU	110	83	-27	276	232	-44	321	267	-54	272	261	-11
FR	DE	MUHLBACH	EICHSTETTEN	-274	41	**315**	181	430	249	427	544	117	595	682	87
FR	DE	VOGELGRUN	EICHSTETTEN	-72	-7	65	26	73	47	78	104	26	107	123	16
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	-349	-237	112	197	287	90	534	627	93	746	751	5
FR	DE	VIGY	ENSDORF 2	-366	-222	144	227	334	107	574	692	118	801	808	7

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	399	390	-9	-29	-61	-32	-161	-467	**-306**
FR	BE	MONT ST MARTIN	AUBANGE	67	78	11	0	4	4	34	-60	-94
FR	BE	MOULAINE	AUBANGE	69	80	11	4	8	4	35	-55	-90
FR	BE	AVELIN	AVELGEM	852	911	59	74	99	25	15	-237	**-252**
FR	BE	MASTAING	AVELGEM	597	611	14	248	251	3	139	-14	-153
FR	BE	CHOOZ	MONCEAU	201	235	34	178	135	-43	145	99	-46
FR	DE	MUHLBACH	EICHSTETTEN	851	862	11	446	536	90	-53	225	**278**
FR	DE	VOGELGRUN	EICHSTETTEN	179	154	-25	69	88	19	-19	48	67
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	968	941	-27	304	339	35	-360	-231	129
FR	DE	VIGY	ENSDORF 2	1031	997	-34	336	367	31	-358	-221	137

				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	128	266	138	152	373	221	215	403	188	273	453	180
FR	CH	MAMBELIN	BASSECOURT	-305	-172	133	-181	-38	143	-116	-10	106	-43	57	100
FR	CH	SIERENTZ	BASSECOURT	442	450	8	344	377	33	329	359	30	317	334	17
FR	CH	BOIS TOLLOT	ROMANEL	48	4	-44	180	97	-83	170	134	-36	236	172	-64
FR	CH	SIERENTZ	LAUFENBURG	191	319	128	96	225	129	144	208	64	207	270	63
FR	CH	CORNIER	RIDDES	-71	-20	51	6	47	41	-9	44	53	12	62	50
FR	CH	CORNIER	ST TRIPHON	-75	-31	44	6	14	8	-11	10	21	16	35	19
FR	CH	PRESSY	VALLORCINES	-147	-90	57	-59	-28	31	-90	-47	43	-65	-24	41
FR	CH	BOIS TOLLOT	VERBOIS	107	146	39	164	187	23	175	198	23	206	218	12
FR	CH	GENISSIAT	VERBOIS	157	167	10	193	189	-4	196	200	4	219	209	-10
FR	CH	GENISSIAT	VERBOIS	157	167	10	194	189	-5	196	200	4	219	209	-10
FR	IT	ALBERTVILLE	RONDISSONE	651	520	-131	841	759	-82	876	749	-127	886	740	-146
FR	IT	ALBERTVILLE	RONDISSONE	651	488	-163	841	730	-111	876	719	-157	887	710	-177
FR	IT	MENTON	CAMPOROSSO	246	198	-48	154	207	53	150	191	41	149	201	52
FR	IT	VILLARODIN	VENAUS	167	162	-5	475	603	128	432	603	171	492	622	130

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	412	556	144	272	396	124	221	358	137
FR	CH	MAMBELIN	BASSECOURT	72	142	70	-118	-35	83	-232	-155	77
FR	CH	SIERENTZ	BASSECOURT	316	321	5	350	364	14	425	422	-3
FR	CH	BOIS TOLLOT	ROMANEL	289	225	-64	182	119	-63	133	19	-114
FR	CH	SIERENTZ	LAUFENBURG	208	290	82	218	269	51	160	253	93
FR	CH	CORNIER	RIDDES	50	91	41	6	48	42	-27	-13	14
FR	CH	CORNIER	ST TRIPHON	39	58	19	-15	15	30	-41	-10	31
FR	CH	PRESSY	VALLORCINES	-26	15	41	-81	-32	49	-113	-88	25
FR	CH	BOIS TOLLOT	VERBOIS	222	212	-10	161	199	38	130	181	51
FR	CH	GENISSIAT	VERBOIS	253	232	-21	191	198	7	171	178	7
FR	CH	GENISSIAT	VERBOIS	253	232	-21	191	198	7	172	178	6
FR	IT	ALBERTVILLE	RONDISSONE	1038	908	-130	970	820	-150	864	581	**-283**
FR	IT	ALBERTVILLE	RONDISSONE	1038	865	-173	970	760	-210	0	550	**550**
FR	IT	MENTON	CAMPOROSSO	147	207	60	155	198	43	158	196	38
FR	IT	VILLARODIN	VENAUS	820	945	125	716	827	111	553	483	-70

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	45	2448	36
	Doel - Mercator (51)	2239	22	2239	23
	Doel - Mercator (52)	2239	22	2239	23
	Doel - Mercator (54)	2448	22	2448	23
	Doel - Zandvliet (25)	2298	19	2349	14
	Mercator - Horta (73)	2569	13	2569	17
	Courcelles - Gramme (31)	2299	51	2349	41
	Mercator - Rodenhuize/Horta (74)	2326	13	2349	18
RTE	Attaques - Warande 2	3780	44	3780	49
	Avelin - Gavrelle	2622	11	2622	22
	Avelin - Warande	3458	22	3458	14
	Lonny - Seuil	4149	10	4149	18
	Mandarins - Warande 1	3780	42	3780	47
	Muhlbach - Scheer	2598	25	2598	29
	Revigny - Vigy	2596	12	2596	22
	Warande - Weppes	3458	27	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	44	2520	9
		Hagenwerder - Mikulowa (567)	2520	33	2520	30
		Hagenwerder - Mikulowa (568)	2520	33	2520	30
		Remptendorf - Redwitz (413)	3417	57	3417	37
		Remptendorf - Redwitz (414)	3417	53	3417	37
		Röhrsdorf - Hradec (445)	2520	47	2520	35
		Röhrsdorf - Hradec (446)	2520	47	2520	35
		Vieselbach - Mecklar (449-1)	2520	44	2520	13
		Wolmirstedt - Helmstedt (491-1)	2400	42	2400	7
		Wolmirstedt - Helmstedt (492-2)	2400	42	2400	7
	220 kV	Vierraden - Krajnik (507)	1334	0	1325	0
		Vierraden - Krajnik (508)	1334	0	1325	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	1	1
	Transnet bw	Eichstetten	1	1
	Amprion	Uchtelfangen	1	1
	Tennet DE	Redwitz	1	1
	50 HzT	Remptendorf	2	2
		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	
Elia	07:00 - 18:00	400	Gramme	Busbar	A	118%	220/ 150	Monceau	TFO		11:30
		Curative action: No constraint after opening the tie- line 220 kV Chooz - Monceau									
50 Hertz	00:00 - 12:00	400	Bärwalde	Graunstein	axis	114%	400	Bärwalde	Graunstein	remaining	07:30
		Preventive action: 2 nodes in Graunstein 400 kV ==> 83 % 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/ Tennet DE	05:00 - 06:00	400	Diele	Meeden	axis	109%	400	Diele	Meeden	remaining	05:30
		Preventive action : -1 tap on Meeden PSTs ==> 96 % remaining									

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): **06:30**
- Peak period (07:00 – 23:00): **16:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to **800 MW**
- Mendrisio-Cagno flow adapted to this schedule : **96 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**

Peak:

- SI ➔ IT physical flow adapted to **800 MW**
- Mendrisio-Cagno flow adapted to this schedule : **122 MW**
- PST of Lienz adapted to: **120 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	1	1
		Grande Ile	1	1
	Terna	Turbigo	1	1
		Baggio	1	1
		Bovisio	**1**	**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	47	2370	56
		Albertville - Rondissone 2	2370	44	2370	54
		Bulciago - Soazza	2300	21	2300	28
		Cagno - Mendrisio	855	17	855	25
		Musignano - Lavorgo	2270	32	2270	39
		Redipuglia - Divaca	2700	34	2700	35
		Robbia - San Fiorano	2530	23	2530	31
		Robbia - Gorlago	2530	30	2530	35
		Venaus - Villarodin	2715	25	2715	37
	220 kV	Airolo - Ponte	900	7	900	7
		Lienz - Soverzene	750	37	750	40
		Menton - Campo Rosso	1165	41	1165	45
		Padriciano - Divaca	960	41	960	25
		Riddes - Avise	1010	12	1010	19
		Riddes - Valpelline	1010	12	1010	20
		Serra - Pallanzeno	900	20	900	23

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	2133	2126	112	797
	Compensation ratio (calculated from NTC)	39%	49%	4%	8%
	Pentalateral impact on physical flows	-25%	-57%	-4%	-14%
Peak	Initial physical flows on adapted base case	2652	2656	120	752
	Compensation ratio (calculated from NTC)	37%	50%	4%	9%
	Pentalateral impact on physical flows	-25%	-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	380	Albertville	Grande Ile	N-2	108% (1')	380	Albertville	Grande Ile	3
		Preventive action: 2 nodes at Albertville (isolating Albertville-Grande Ile 3) **=> 72% remaining**								
Constraint detected with preventive action above :										
Off Peak	RTE	380	Cornier	Montagny Les Lanche	N-1	154% (1')	220	Albertville	Chavanod-Génissiat	
		No cascading effect after tripping.								

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	380	Albertville	Grande Ile	N-2	126% (1')	380	Albertville	Grande Ile	3
		Preventive action: 2 nodes atAlbertville (isolating Albertville-Grande Ile 3) **=> 85% remaining**								
Constraint detected with preventive action above :										
Peak	RTE	380	Albertville	Coche	N-1	138% (1')	220	Albertville	Longefan-Randens	
		No cascading effect after tripping.								

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	51
Rondissone 1 (1/33)	30	281
Rondissone 2 (1/33)	33	1043
Camporosso (-32/32)	-7	282
Lienz (-32/32)	8	128
Padriciano (1/33)	1	171
Divaca (-32/32 each)	23	680

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	598
Rondissone 1 (1/33)	30	867
Rondissone 2 (1/33)	32	838
Camporosso (-32/32)	-2	209
Lienz (-32/32)	2	122
Padriciano (1/33)	1	96
Divaca (-32/32 each)	27	659

Conclusion

CWE: No critical constraint detected.
CEE: No critical constraint detected.
CSE: Critical constraint detected on Albertville - Grande Ile 3 and internal constraints on 220kV grid in the same area that are manageable with topological measures.