CORESO Engineers ***North :*** PREVOST Raphaël ***South :*** BOYER Jonathan	**Day Ahead report for** **12 January 2018**

Security Levels:

CWE: No critical constraint detected.

CEE: No critical constraint detected.

CSE: High flows expected from SL to IT due to the Divaca PST issue, coordination could be required to manage flows.

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]	12 000	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	**5**	2500
				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]	76 000	08:00		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]	46 500	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]	43900	17:30		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

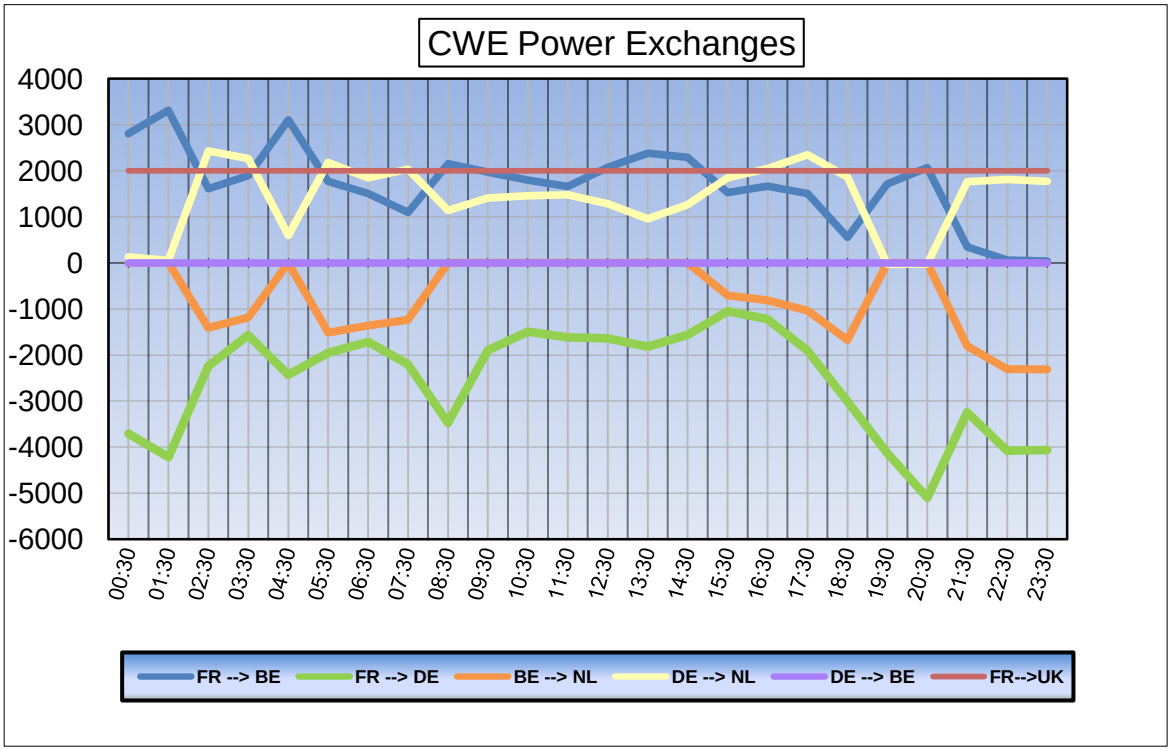
CSE

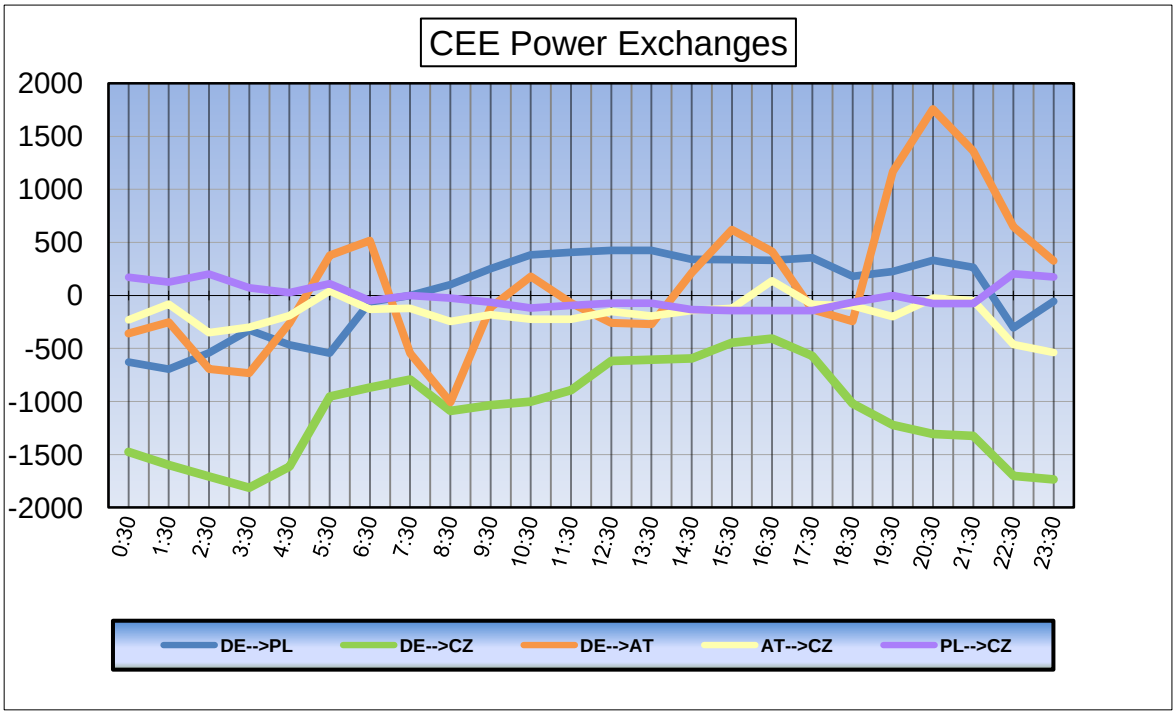
ELES: The PST of Divaca will be at tap -26 from 0:00 till 6:00 am and then by-passed till Saturday morning.
Note : The PST of Divaca needs to be at tap 0 for the disconnection with flow lower than 1200MW. That's why it will be disconnected between 6:00 and 7:00 am.

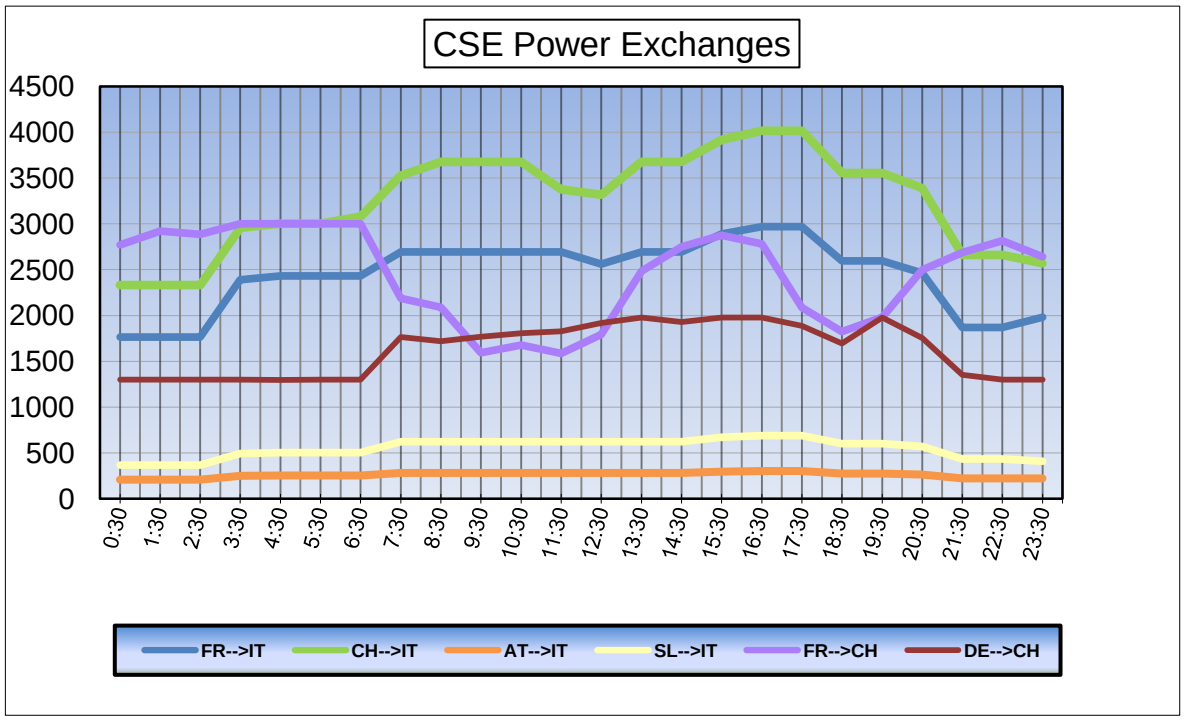
Outages table

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	CROSSEN _ RÖHRSDORF 211 220 kV	08/01/2018	12/01/2018	Alternating
50HzT	Line	CROSSEN _ RÖHRSDORF 212 220 kV	08/01/2018	12/01/2018	Alternating
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	06/10/2017	16/03/2018	
50HzT	Line	GUSTROW _ PUTLITZ 514 400 kV	12/01/2018	12/01/2018	
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 961 400 kV	08/01/2018	12/01/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	26/09/2017	31/01/2018	
50HzT	Line	RAGOW _ Förderstedt 531 400 kV	02/01/2018	14/01/2018	
50HzT	Line	RAGOW _ FORDERSTEDT 532 380 kV	02/01/2018	14/01/2018	
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	
APG	Line	TAUERN _ PST 220 kV	14/12/2017	15/01/2018	
CEPS	Line	DASNY _ KOCIN 473 400 kV	08/01/2018	26/01/2018	
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	Fossil.Gen	TUROW _ Unit 2 225 kV	01/03/2017	12/01/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	08/01/2018	12/01/2018	
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	08/01/2018	12/01/2018	
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	13/03/2015	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	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET DE	Line	WURGASSEN _ GROHNDE 2 400 kV	08/01/2018	12/01/2018	
TENNET NL	Line	HENGELO _ ZWOLLE WT 400 kV	08/01/2018	12/01/2018	
TERNA	Line	PIAN CAMUNO _ S.FIORANO 358 400 kV	05/01/2018	31/01/2018	Forced outage
TransnetBW	Line	DAXLANDEN _ PHILIPPSBURG GE 400 kV	08/01/2018	12/01/2018	
TransnetBW	Line	DAXLANDEN _ PHILIPPSBURG RT 400 kV	09/01/2018	12/01/2018	

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	03:30	05:30	06:30	07:30	08:30	10:30	12:30	13:30	17:30	19:30	21:30	23:30
BE	FR	ACHENE	LONNY	380.19	-255	-150	36	138	136	143	64	-2	35	406	325	318
BE	FR	AUBANGE	MONT ST MARTIN	220.51	-155	-118	-68	-75	-89	-96	-122	-141	-130	-7	-14	1
BE	FR	AUBANGE	MOULAINE	220.51	-162	-129	-77	-85	-99	-107	-137	-149	-139	-22	-29	-22
BE	FR	AVELGEM	AVELIN	380.80	-668	-572	-472	-133	-48	-134	-134	-233	-236	255	115	87
BE	FR	AVELGEM	MASTAING	380.79	-459	-424	-441	-355	-318	-357	-348	-380	-377	-164	-196	-211
BE	FR	MONCEAU	CHOOZ	220.48	-209	-204	-166	-97	-103	-111	-121	-130	-119	-39	-74	-84
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-430	-518	-504	-498	-484	-419	-414	-407	-473	-539	-592	-640
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-124	-245	-98	-33	-4	178	88	68	-18	-144	-283	-342
BE	NL	ZANDVLIET	BORSSELE	380.29	-346	-412	-632	-791	-768	-720	-737	-754	-746	-906	-699	-726
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-215	-388	-355	-335	-299	-185	-201	-238	-268	-504	-611	-604
BE	LU	BELVAL	SCHIFFLANGE	220.511	-78	-138	-103	-96	-98	-5	-30	-26	-98	-80	-103	-140

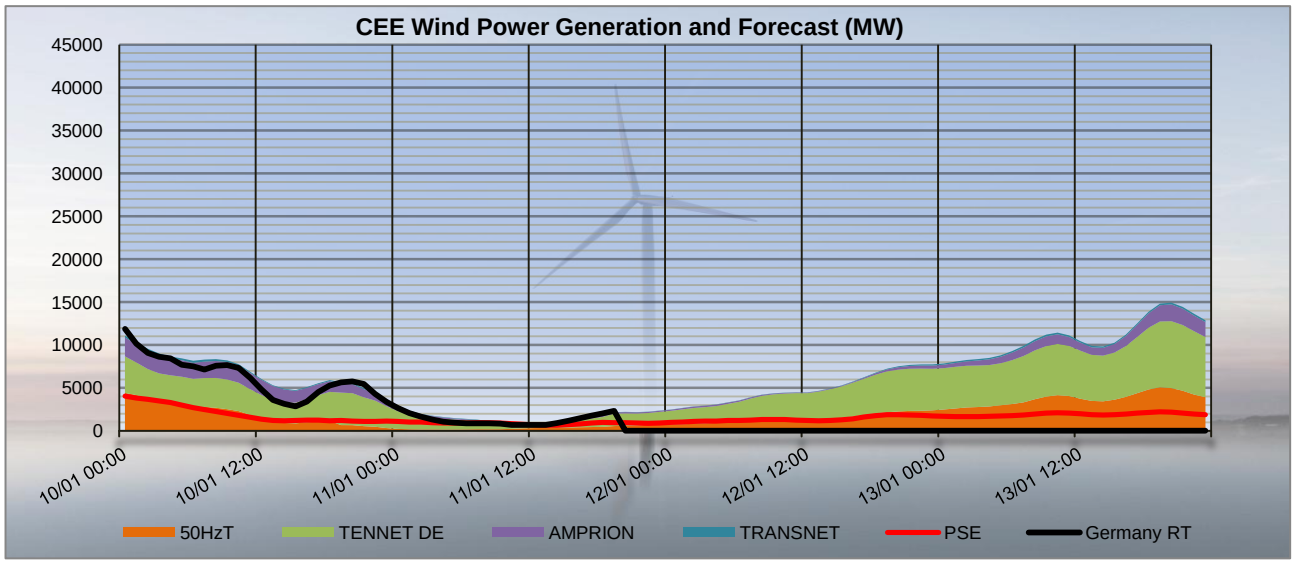
BE	FR	TOTAL		-1908	-1597	-1188	-607	-521	-662	-798	-1035	-966	429	127	89
BE	NL	TOTAL		-1115	-1563	-1589	-1657	-1555	-1146	-1264	-1331	-1505	-2093	-2185	-2312
BE	LU	TOTAL		-78	-138	-103	-96	-98	-5	-30	-26	-98	-80	-103	-140
TOTAL BELGIAN IMPORT/EXPORT				-3101	-3298	-2880	-2360	-2174	-1813	-2092	-2392	-2569	-1744	-2161	-2363

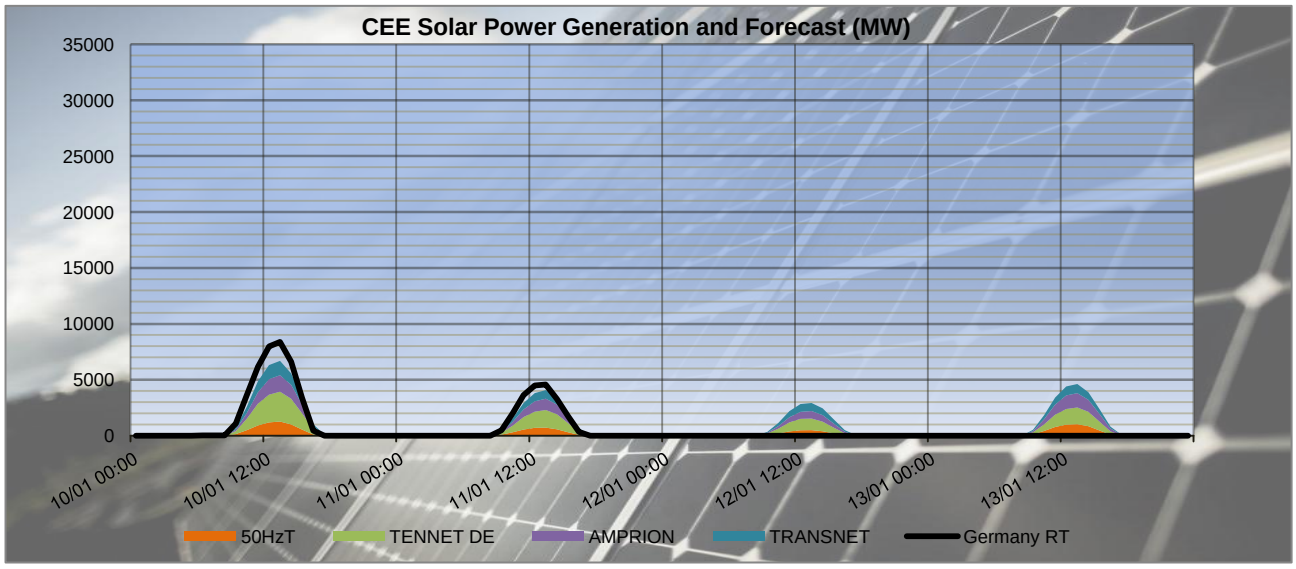
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 2	12	12	12	12	12	12	12	12	12	12	12	12	12
	Average	12	12	12	12	12	12	12	12	12	12	12	12	12

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]**	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

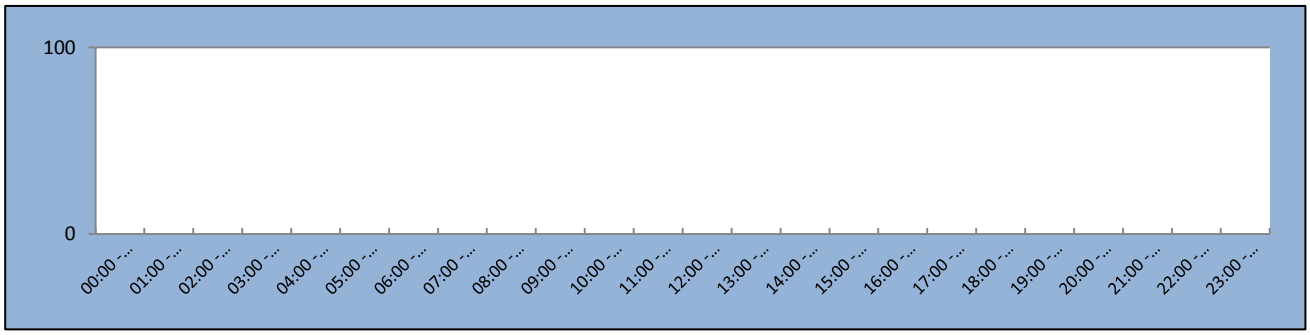
CEE Renewable Power Generation & Forecast



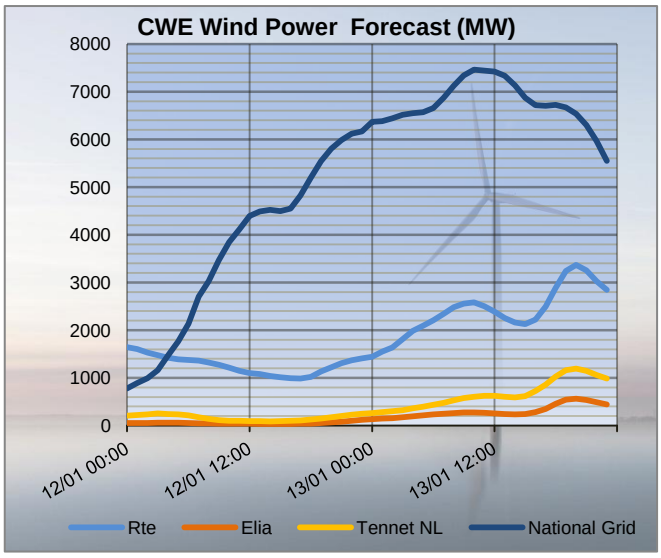


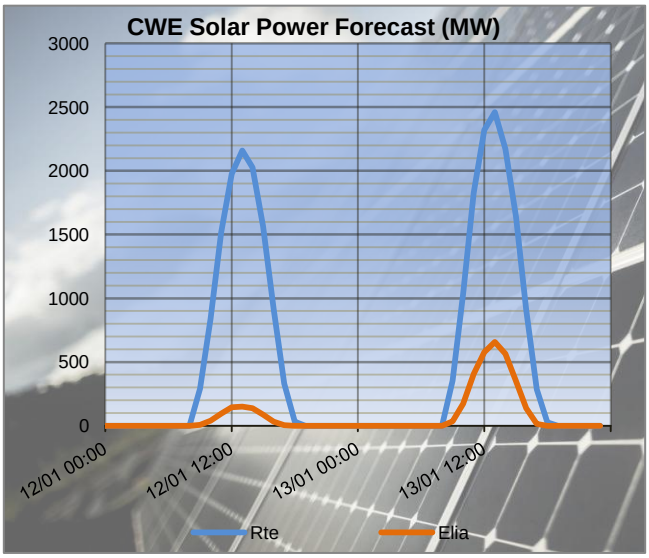
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

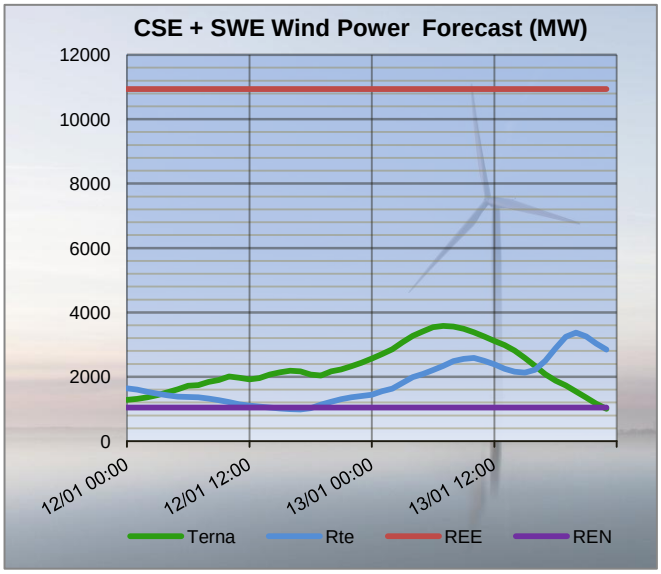
50HzT Preventive Redispatch

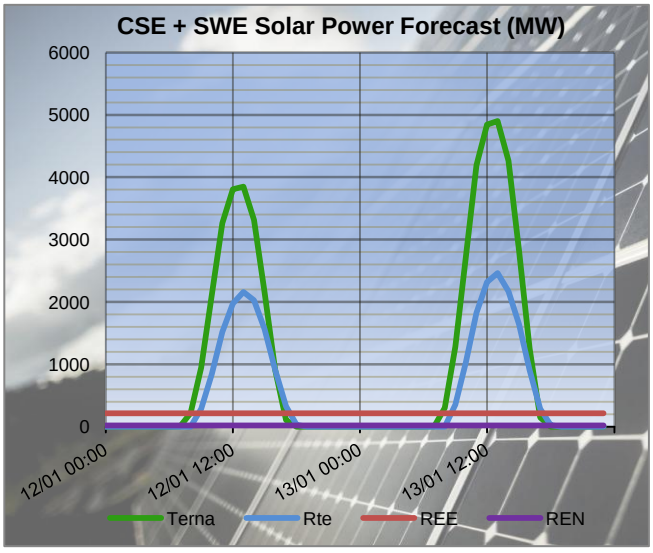


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	173	255	82	-31	-138	-107	-56	-143	-87	9	-64	-73
FR	BE	MONT ST MARTIN	AUBANGE	182	155	-27	94	75	-19	111	96	-15	127	122	-5
FR	BE	MOULAINE	AUBANGE	187	162	-25	103	85	-18	120	107	-13	142	137	-5
FR	BE	AVELIN	AVELGEM	598	668	70	11	133	122	18	134	116	99	134	35
FR	BE	MASTAING	AVELGEM	445	459	14	292	355	63	295	357	62	338	348	10
FR	BE	CHOOZ	MONCEAU	153	209	56	136	97	-39	97	111	14	116	121	5
FR	DE	MUHLBACH	EICHSTETTEN	154	242	88	17	144	127	31	176	145	-18	186	204
FR	DE	VOGELGRUN	EICHSTETTEN	-32	18	50	-47	0	47	-25	23	48	-38	23	61
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	111	258	147	95	200	105	273	301	28	241	279	38
FR	DE	VIGY	ENSDORF 2	37	206	169	152	287	135	352	401	49	320	375	55

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	-149	-35	114	-410	-406	4	-470	-318	152
FR	BE	MONT ST MARTIN	AUBANGE	155	130	-25	12	7	-5	-15	-1	14
FR	BE	MOULAINE	AUBANGE	163	139	-24	26	22	-4	8	22	14
FR	BE	AVELIN	AVELGEM	180	236	56	-432	-255	177	-284	-87	197
FR	BE	MASTAING	AVELGEM	366	377	11	66	164	98	114	211	97
FR	BE	CHOOZ	MONCEAU	116	119	3	34	39	5	63	84	21
FR	DE	MUHLBACH	EICHSTETTEN	-36	117	153	-132	29	161	-220	-28	192
FR	DE	VOGELGRUN	EICHSTETTEN	-63	13	76	-76	-13	63	-68	10	78
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	155	234	79	-61	47	108	-213	-70	143
FR	DE	VIGY	ENSDORF 2	222	332	110	-20	112	132	-310	-141	169

				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	251	253	2	-29	124	153	21	129	108	81	105	24
FR	CH	MAMBELIN	BASSECOURT	-174	-109	65	-342	-253	89	-273	-209	64	-258	-198	60
FR	CH	SIERENTZ	BASSECOURT	429	403	-26	406	385	-21	363	329	-34	374	343	-31
FR	CH	BOIS TOLLOT	ROMANEL	193	127	-66	66	14	-52	81	2	-79	128	40	-88
FR	CH	SIERENTZ	LAUFENBURG	252	231	-21	-3	-18	-15	-31	-33	-2	13	17	4
FR	CH	CORNIER	RIDDES	-12	7	19	-42	-6	36	-33	-18	15	-16	-7	9
FR	CH	CORNIER	ST TRIPHON	-24	-4	20	-58	-28	30	-36	-18	18	-30	-13	17
FR	CH	PRESSY	VALLORCINES	-95	-69	26	-130	-82	48	-115	-90	25	-102	-80	22
FR	CH	BOIS TOLLOT	VERBOIS	220	190	-30	182	195	13	224	230	6	225	241	16
FR	CH	GENISSIAT	VERBOIS	142	106	-36	143	135	-8	175	157	-18	174	161	-13
FR	CH	GENISSIAT	VERBOIS	142	106	-36	143	135	-8	175	157	-18	174	161	-13
FR	IT	ALBERTVILLE	RONDISSONE	791	599	-192	787	567	-220	841	604	-237	846	595	**-251**
FR	IT	ALBERTVILLE	RONDISSONE	840	576	**-264**	876	578	**-298**	940	631	**-309**	913	580	**-333**
FR	IT	MENTON	CAMPOROSSO	248	427	179	156	304	148	157	538	**381**	158	645	**487**
FR	IT	VILLARODIN	VENAUS	385	258	-127	603	507	-96	811	705	-106	645	538	-107

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	69	106	37	86	87	1	65	-24	-89
FR	CH	MAMBELIN	BASSECOURT	-312	-234	78	-351	-299	52	-422	-363	59
FR	CH	SIERENTZ	BASSECOURT	402	387	-15	489	426	-63	455	398	-57
FR	CH	BOIS TOLLOT	ROMANEL	98	22	-76	84	-38	-122	37	-87	-124
FR	CH	SIERENTZ	LAUFENBURG	49	25	-24	42	42	0	44	9	-35
FR	CH	CORNIER	RIDDES	-43	-8	35	-46	-44	2	-84	-73	11
FR	CH	CORNIER	ST TRIPHON	-45	-32	13	-57	-56	1	-81	-92	-11
FR	CH	PRESSY	VALLORCINES	-144	-95	49	-132	-124	8	-190	-180	10
FR	CH	BOIS TOLLOT	VERBOIS	253	261	8	209	238	29	191	219	28
FR	CH	GENISSIAT	VERBOIS	174	158	-16	175	161	-14	109	93	-16
FR	CH	GENISSIAT	VERBOIS	174	158	-16	175	161	-14	109	93	-16
FR	IT	ALBERTVILLE	RONDISSONE	867	636	-231	740	529	-211	549	349	-200
FR	IT	ALBERTVILLE	RONDISSONE	964	633	**-331**	822	504	**-318**	591	318	**-273**
FR	IT	MENTON	CAMPOROSSO	150	414	**264**	144	339	195	155	53	-102
FR	IT	VILLARODIN	VENAUS	661	582	-79	542	504	-38	254	211	-43

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	40
	Doel - Mercator (51)	2239	38	2239	45
	Doel - Mercator (52)	2239	38	2239	45
	Doel - Mercator (54)	2448	38	2448	45
	Doel - Zandvliet (25)	2296	18	2349	33
	Mercator - Horta (73)	2569	31	2569	47
	Courcelles - Gramme (31)	2349	48	2349	43
	Mercator - Rodenhuize/Horta (74)	2349	36	2349	54
RTE	Attaques - Warande 2	3780	57	3780	60
	Avelin - Gavrelle	2622	34	2622	51
	Avelin - Warande	3458	12	3458	8
	Lonny - Seuil	4149	23	4149	28
	Mandarins - Warande 1	3780	53	3780	56
	Muhlbach - Scheer	2598	18	2598	21
	Revigny - Vigy	2596	39	2596	48
	Warande - Weppes	3458	18	3458	14

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	21	2520	14
		Hagenwerder - Mikulowa (567)	2520	18	2520	8
		Hagenwerder - Mikulowa (568)	2520	18	2520	8
		Remptendorf - Redwitz (413)	3507	38	3507	41
		Remptendorf - Redwitz (414)	3507	38	3507	41
		Röhrsdorf - Hradec (445)	2520	15	2520	21
		Röhrsdorf - Hradec (446)	2520	15	2520	21
		Vieselbach - Mecklar (449-1)	2520	25	2520	19
		Wolmirstedt - Helmstedt (491-1)	2400	8	2400	7
		Wolmirstedt - Helmstedt (492-2)	2400	8	2400	7
	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	
50HzT / TenneT DE	14:00-17:00	380	Wilster	Dollern	axis	105%	380	Hamburg-West	Hamburg-North	axis	16:30
		Preventive action: 2-nodes topology in Hamburg-North (50 HzT information).									

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	17:00-18:00	380	Lelystad	Ens	axis	105%	380	Lelystad	Ens	remaining	17:30
		Preventive action: 2-nodes topology at Lelystad => 93% remaining. **Remark:** a new security analysis was launched with this preventive action and no new constraint appeared.									

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	
400	Avelgem	Busbar	1	126%	150	Brugge	Slykens		07:00 - 20:00
400	Avelgem	Busbar	2	116%	150	Izegem	Wevelgem		07:00 - 20:00
400	Mercator	Busbar	2A	140%	150	Lillo	Zandvliet		06:00 - 24:00
400	Bruegel	Busbar	1	109%	150	Gouy	Oisquercq		08:00 - 20:00

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): **03:30**
- Peak period (07:00 – 23:00): **17:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to the target flow : **1200 MW , Divaca PST forced to tap -26**
- Mendrisio-Cagno flow adapted to the schedule : **200 MW**
- PST of Lienz adapted to **150 MW**
- PST of Camporosso adapted to **150 MW**

Peak:

- SI ➔ IT physical flow adapted to the target flow : **1700 MW , Divaca PST by-passed**
- Mendrisio-Cagno flow adapted to the schedule : **200 MW**
- PST of Lienz adapted to **150 MW**
- PST of Camporosso adapted to **150 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	**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	40	2370	42
		Albertville - Rondissone 2	2370	39	2370	42
		Bulciago - Soazza	2300	29	2300	44
		Cagno - Mendrisio	855	36	855	41
		Musignano - Lavorgo	2270	48	2270	53
		Redipuglia - Divaca	2700	51	2700	80
		Robbia - San Fiorano	2530	36	2530	48
		Robbia - Gorlago	2530	42	2530	56
		Venaus - Villarodin	2715	18	2715	34
	220 kV	Airolo - Ponte	900	6	900	11
		Lienz - Soverzene	750	45	750	51
		Menton - Campo Rosso	1165	30	1165	34
		Padriciano - Divaca	960	77	960	65
		Riddes - Avise	1010	5	1010	14
		Riddes - Valpelline	1010	5	1010	12
		Serra - Pallanzeno	900	15	900	30

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	1744	2925	131	1250
	Compensation ratio (calculated from NTC)	39%	49%	4%	8%
	Pentalateral impact on physical flows	-26%	-57%	-4%	-14%
Peak	Initial physical flows on adapted base case	2152	3919	154	1739
	Compensation ratio (calculated from NTC)	37%	50%	4%	9%
	Pentalateral impact on physical flows	-18%	-60%	-4%	-18%

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	Busbar	N-K	105% 1'	220	Albertville	Longefan	
		Preventive action : Increase 9 taps on La Praz PST => 106% 10' remaining. **Curative action :** Open the line Saussaz - Vieux moulin => 98% remaning.								
	Terna / APG / Eles	380	Redipuglia-Planais	ATD	N-K	118%	220	Lienz	Soverzene	
		Curative action : Decrease 4 taps on Lienz PST => 95% 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 / APG / Eles	380	Redipuglia-Planais	ATD	N-K	160%	220	Lienz	Soverzene	
		Preventive action : Decrease 7 taps on Lienz PST => 116% remaining. **Curative action :** Decrease 4 taps on Lienz PST => 98% 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	323
Rondissone 1 (1/33)	30	628
Rondissone 2 (1/33)	32	645
Camporosso (-32/32)	-4	141
Lienz (-32/32)	-16	132
Padriciano (1/33)	33	300
Divaca (-32/32 each)	-26	954

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	655
Rondissone 1 (1/33)	29	677
Rondissone 2 (1/33)	32	674
Camporosso (-32/32)	-1	148
Lienz (-32/32)	-18	156
Padriciano (1/33)	15	247
Divaca (-32/32 each)	-26	0

Conclusion

CWE: No critical constraint detected.
CEE: No critical constraint detected.
CSE: High flows expected from SL to IT due to the Divaca PST issue, coordination could be required to manage flows.