

<p><b><u>CORESO Engineers</u></b></p> <p><b><u>North :</u></b> BROUTA Karl</p> <p><b><u>South :</u></b> KESRAOUI Mickael</p>	<p><b>Day Ahead report for</b></p> <p><b>03 January 2018</b></p>
<p><b>Security Levels:</b></p> <p><b>CWE: Windstorm is expected for tomorrow in the CWE area starting this night (from 00:00 to 09:00). N-2 list has been used for Rte and Elia during the D-1 studies. No critical constraint are expected in the CWE area.</b></p> <p><b>CEE: No constraints detected.</b></p> <p><b>CSE: Critical constraint detected on Albertville - Grande Ile 3 that is manageable with topological measures.</b></p>	

#### **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]	9200	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	1900
						900	1	
				Schw. Pumpe		800	2	1600
				Lippendorf		920	2	1840
RTE			RTE	Gravelines	Pmax (MW)	900	5	4500
Peak load [MW]	70 500	19:00		Chooz		1500	1	1500
				Cattenom		1300	4	5200
Generation Margin	Sufficient			Fessenheim		900	1	900
				Penly		1300	2	2600
NATIONAL GRID (UK time)				Paluel		1300	3	3900
Peak load [MW]	47 200	17:30		Nogent s/ Seine		1300	2	2600
				Generation Margin		Sufficient		Bugey
				St Alban		1300	2	2600
TERNA				Cruas		900	3	2700
Peak load [MW]	41300	18:30		Tricastin		900	3	2700
			Sufficient					

### 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:

**RTE and Elia:** Windstorm expected during the night from 00:00 to 09:00 in the CWE area ==> N-2 contingency list has been used for Rte and Elia during the D-1 studies.

**RTE:** Busbar coupler fault in Real time today (2nd of January) in Revigny substation ==> special topology implemented in DACFs (one busbar)

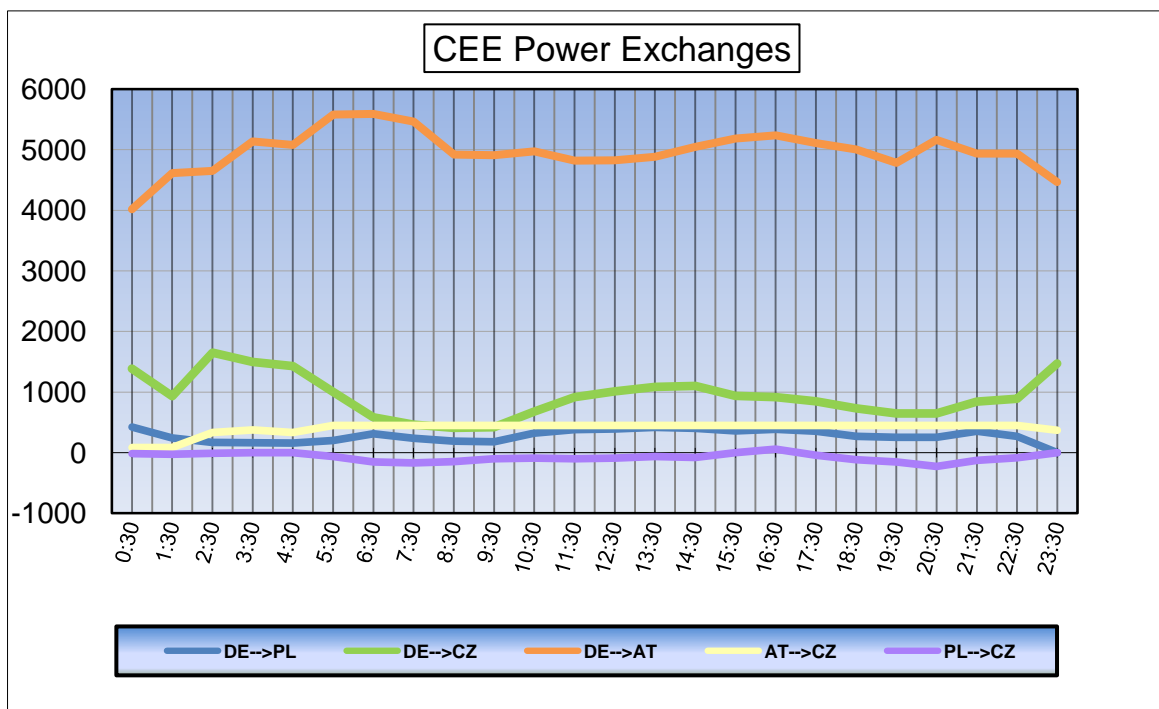
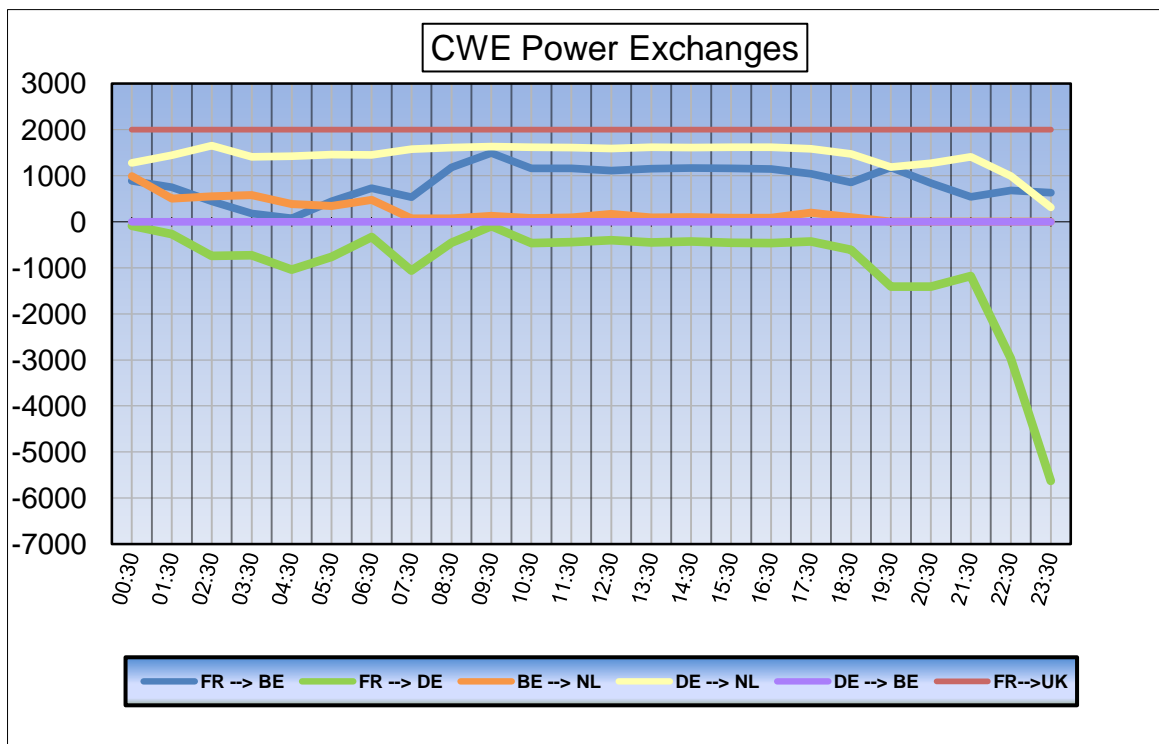
**ELIA:** Schiffflange PST is in outage until Thursday

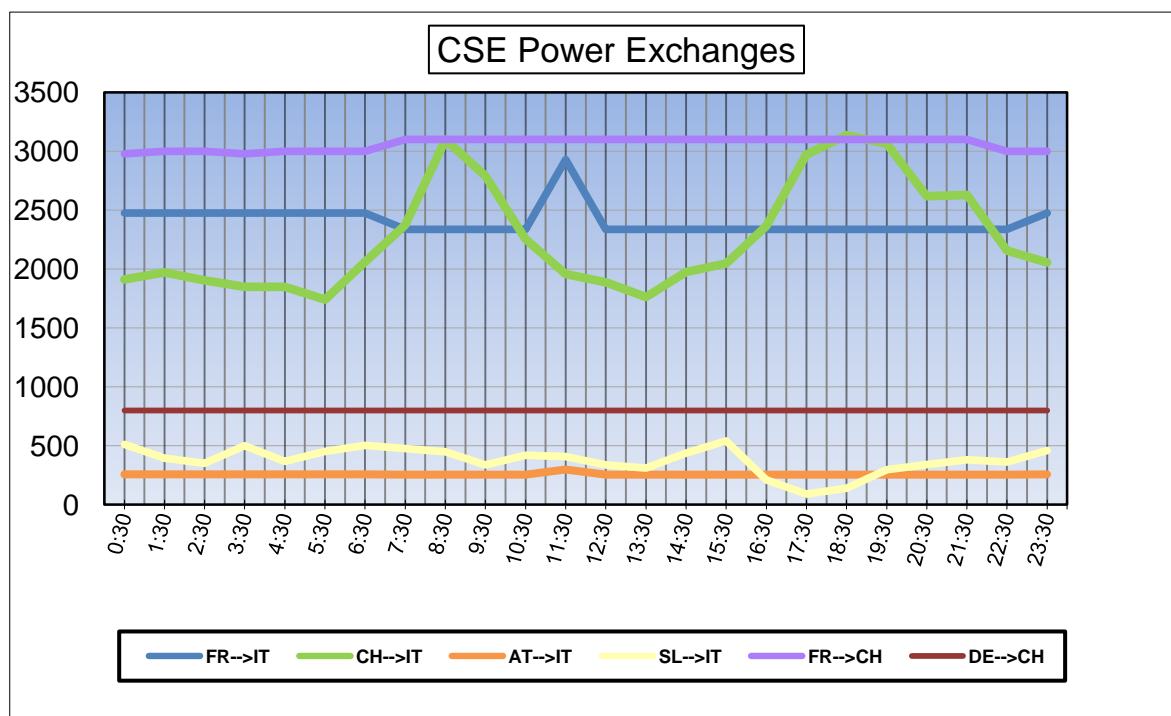
**RTE:** Tricastin 1 should be back in service the 05/01/18.

## 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	Line	HAGENWERDER _ SCHMÖLLN 553 400 kV	03/01/2018	03/01/2018	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	
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
HOPS	Line	VELEBIT _ KONJSKO 400 kV	03/01/2018	03/01/2018	
PSE	Fossil.Gen	TUROW _ Unit 2 225 kV	01/03/2017	12/01/2018	
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





## ELIA expected flows & PSTs tap position

		Node 1	Node 2	Order	00:30	03:30	04:30	07:30	10:30	11:30	12:30	16:30	17:30	19:30	22:30	23:30
BE	FR	ACHENE	LONNY	380.19	-19	20	61	89	-8	-38	-23	-9	88	94	261	524
BE	FR	AUBANGE	MONT ST MARTIN	220.51	-17	-15	-14	1	-31	-18	-19	-21	24	-10	13	44
BE	FR	AUBANGE	MOULAIN	220.51	-14	-9	-4	7	-27	-23	-20	-22	25	-11	14	46
BE	FR	AVELGEM	AVELIN	380.80	-390	-68	-9	-203	-317	-371	-298	-321	-312	-69	43	466
BE	FR	AVELGEM	MASTAING	380.79	-263	-99	-72	-214	-310	-332	-295	-281	-308	-178	-98	97
BE	FR	MONCEAU	CHOOZ	220.48	-151	-98	-94	-154	-197	-204	-192	-186	-204	-173	-139	-96
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-62	-51	-84	-210	-250	-228	-223	-231	-260	-370	-397	-575
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	505	304	241	298	314	358	334	266	396	38	-9	-348
BE	NL	ZANDVLIET	BORSSELE	380.29	-26	-35	-127	-391	-543	-530	-528	-542	-556	-505	-298	-441
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	537	452	405	318	289	317	324	291	255	0	-72	-351
BE	LU	BELVAL	SCHIFFLANGE	220.511	0	0	0	0	0	0	0	0	0	0	0	0

BE	FR	TOTAL		-854	-269	-132	-474	-890	-986	-847	-840	-687	-347	94	1081
BE	NL	TOTAL		954	670	435	15	-190	-83	-93	-216	-165	-837	-776	-1715
BE	LU	TOTAL		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BELGIAN IMPORT/EXPORT				100	401	303	-459	-1080	-1069	-940	-1056	-852	-1184	-682	-634

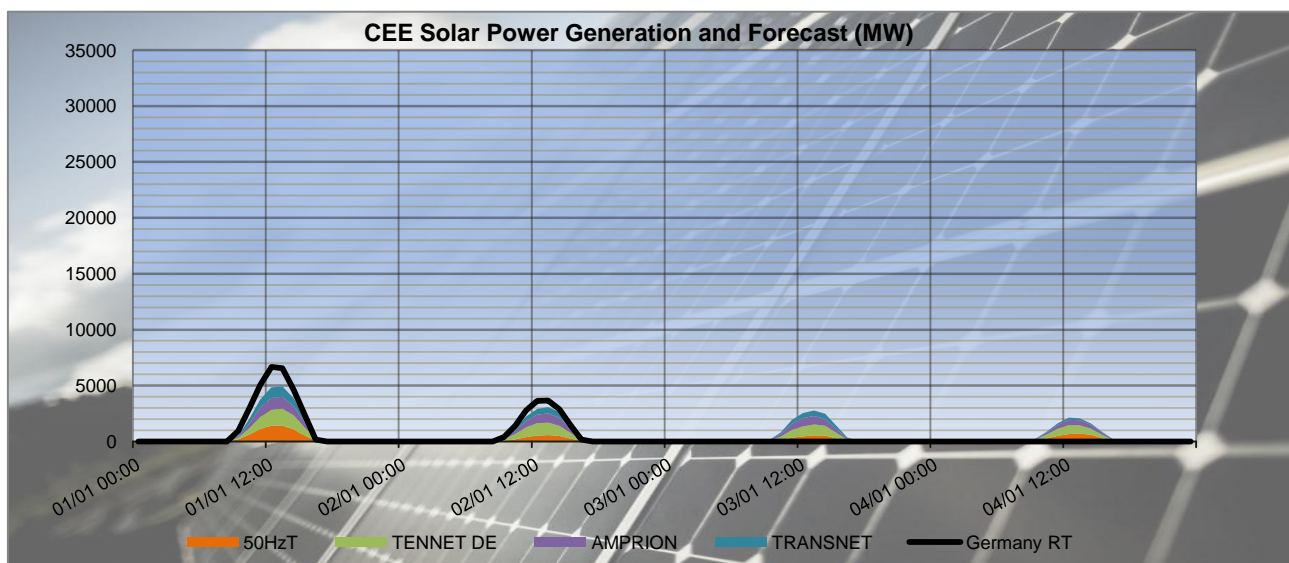
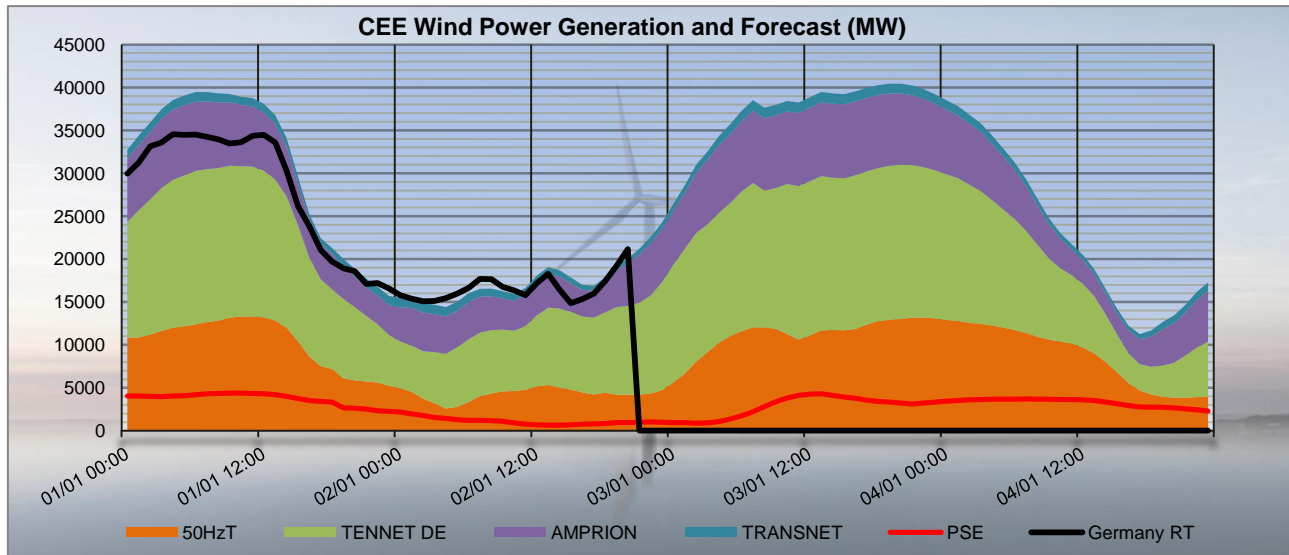
PST taps in DACF	Zandvliet 1	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	14	14	14	14	14	14

CREOS PST in DACF	Schiffflange	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out
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### Proposal for real time after D-1 studies

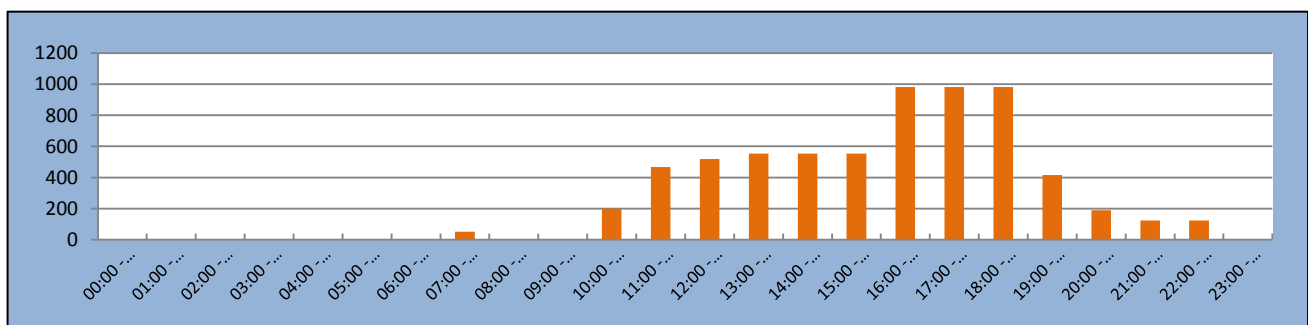
Timestamps	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PSTs																								
Zandvliet PST 1	[1;35]	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Zandvliet PST 2	[1;35]	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Van Eyck PST 1	[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
Schiffflange 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

## CEE Renewable Power Generation & Forecast

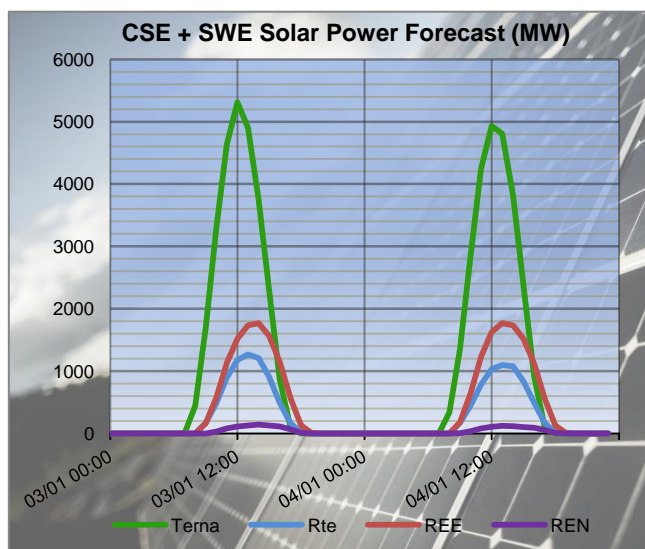
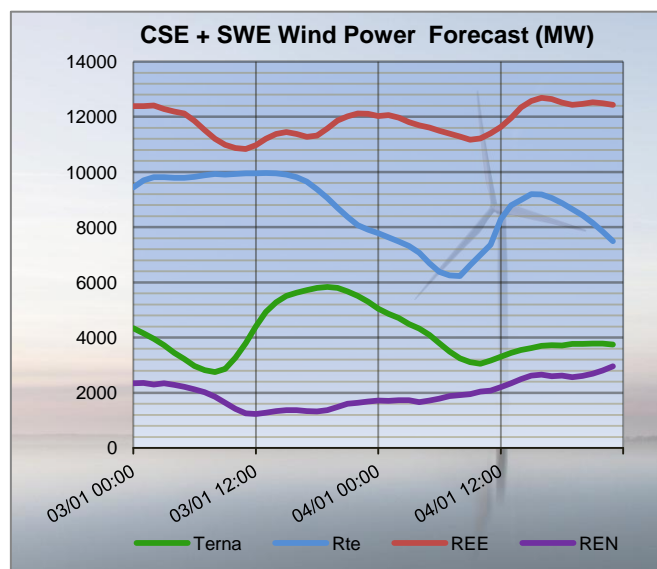
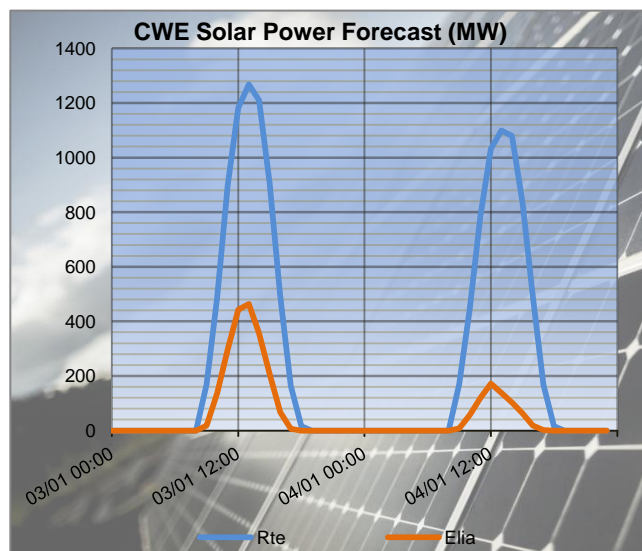
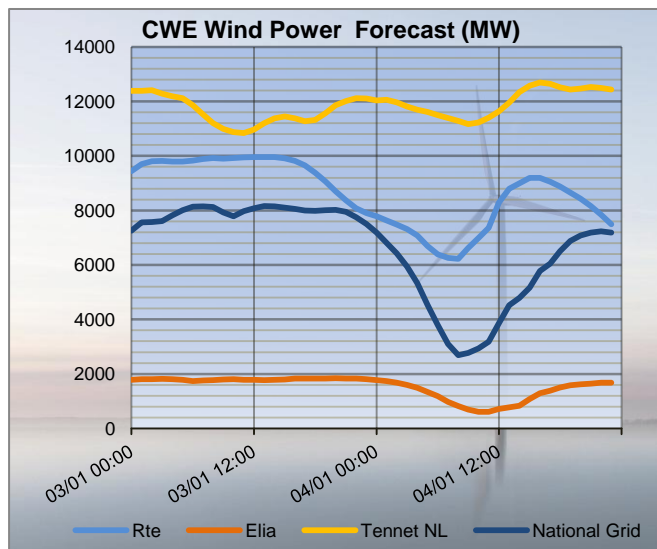


The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

## 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	-20	-200	69	-89	-158	317	8	-309	335	23	-312
FR	BE	MONT ST MARTIN	AUBANGE	-34	15	49	-41	-1	40	60	31	-29	58	19	-39
FR	BE	MOULAIN	AUBANGE	-38	9	47	-45	-7	38	54	27	-27	57	20	-37
FR	BE	AVELIN	AVELGEM	233	68	-165	281	203	-78	473	317	-156	425	298	-127
FR	BE	MASTAING	AVELGEM	214	99	-115	281	214	-67	412	310	-102	381	295	-86
FR	BE	CHOOZ	MONCEAU	112	98	-14	157	154	-3	220	197	-23	238	192	-46
FR	DE	MUHLBACH	EICHSTETTEN	315	501	186	437	610	173	301	679	378	300	656	356
FR	DE	VOGELGRUN	EICHSTETTEN	51	75	24	50	93	43	44	111	67	44	104	60
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	342	426	84	193	354	161	295	312	17	260	378	118
FR	DE	VIGY	ENSDORF 2	366	463	97	209	396	187	323	339	16	287	415	128

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	160	-88	-248	185	-94	-279	-327	-524	-197
FR	BE	MONT ST MARTIN	AUBANGE	42	-24	-66	48	10	-38	-25	-44	-19
FR	BE	MOULAIN	AUBANGE	38	-25	-63	47	11	-36	-28	-46	-18
FR	BE	AVELIN	AVELGEM	507	312	-195	364	69	-295	-215	-466	-251
FR	BE	MASTAING	AVELGEM	443	308	-135	375	178	-197	67	-97	-164
FR	BE	CHOOZ	MONCEAU	219	204	-15	209	173	-36	105	96	-9
FR	DE	MUHLBACH	EICHSTETTEN	300	688	388	152	531	379	-106	186	292
FR	DE	VOGELGRUN	EICHSTETTEN	28	132	104	9	95	86	-37	17	54
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	271	401	130	90	244	154	-399	-272	127
FR	DE	VIGY	ENSDORF 2	301	444	143	116	283	167	-401	-264	137

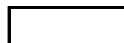
				03:30			07:30			10:30			12:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	339	328	-11	373	327	-46	277	346	69	276	343	67
FR	CH	MAMBELIN	BASSEECOURT	-153	-86	67	-202	-139	63	-163	-52	111	-134	-33	101
FR	CH	SIERENTZ	BASSEECOURT	425	425	0	427	444	17	327	378	51	360	361	1
FR	CH	BOIS TOLLOT	ROMANEL	78	67	-11	64	6	-58	105	112	7	137	126	-11
FR	CH	SIERENTZ	LAUFENBURG	222	381	159	297	304	7	228	296	68	240	333	93
FR	CH	CORNIER	RIDDES	-69	-10	59	-66	-9	57	-45	23	68	-32	29	61
FR	CH	CORNIER	ST TRIPHON	-71	-33	38	-68	-34	34	-56	1	57	-23	7	30
FR	CH	PRESSY	VALLORCINES	-191	-106	85	-173	-97	76	-161	-67	94	-138	-62	76
FR	CH	BOIS TOLLOT	VERBOIS	130	159	29	119	193	74	133	243	110	193	251	58
FR	CH	GENISSIAT	VERBOIS	166	177	11	155	179	24	170	231	61	208	234	26
FR	CH	GENISSIAT	VERBOIS	166	177	11	155	179	24	170	231	61	208	234	26
FR	IT	ALBERTVILLE	RONDISSONE	662	583	-79	746	585	-161	831	667	-164	811	654	-157
FR	IT	ALBERTVILLE	RONDISSONE	662	536	-126	747	539	-208	832	621	-211	812	624	-188
FR	IT	MENTON	CAMPOROSSO	247	202	-45	144	198	54	146	194	48	148	200	52
FR	IT	VILLARODIN	VENAUS	294	375	81	287	316	29	569	581	12	469	453	-16

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	205	325	120	175	270	95	83	159	76
FR	CH	MAMBELIN	BASSEECOURT	-184	-57	127	-202	-78	124	-382	-285	97
FR	CH	SIERENTZ	BASSEECOURT	312	329	17	320	315	-5	484	471	-13
FR	CH	BOIS TOLLOT	ROMANEL	119	86	-33	108	49	-59	4	-72	-76
FR	CH	SIERENTZ	LAUFENBURG	198	250	52	108	270	162	88	243	155
FR	CH	CORNIER	RIDDES	-39	26	65	-30	21	51	-112	-73	39
FR	CH	CORNIER	ST TRIPHON	-52	-16	36	-49	-17	32	-115	-79	36
FR	CH	PRESSY	VALLORCINES	-154	-70	84	-137	-69	68	-240	-183	57
FR	CH	BOIS TOLLOT	VERBOIS	124	197	73	129	199	70	117	162	45
FR	CH	GENISSIAT	VERBOIS	169	201	32	159	184	25	139	145	6
FR	CH	GENISSIAT	VERBOIS	169	201	32	159	184	25	139	145	6
FR	IT	ALBERTVILLE	RONDISSONE	908	730	-178	868	716	-152	554	459	-95
FR	IT	ALBERTVILLE	RONDISSONE	908	686	-222	869	686	-183	554	427	-127
FR	IT	MENTON	CAMPOROSSO	159	199	40	154	203	49	153	200	47
FR	IT	VILLARODIN	VENAUS	658	622	-36	762	786	24	118	183	65

## N state flows at 10:30 and 19:30

The I<sub>max</sub> and load values in the table below are extracted from the merged TSOs' DACF.

TSO	Line (380 kV)	10:30		19:30	
		I <sub>max</sub> (A)	% of I <sub>max</sub>	I <sub>max</sub> (A)	% of I <sub>max</sub>
ELIA	Champion - Gramme (32)	2448	38	2448	36
	Doel - Mercator (51)	2239	26	2239	29
	Doel - Mercator (52)	2239	26	2239	29
	Doel - Mercator (54)	2448	25	2448	29
	Doel - Zandvliet (25)	2349	10	2349	7
	Mercator - Horta (73)	2569	16	2569	20
	Courcelles - Gramme (31)	2294	46	2349	42
	Mercator - Rodenhuize/Horta (74)	2314	17	2349	22
RTE	Attaques - Warande 2	3780	48	3780	49
	Avelin - Gavrelle	2622	13	2622	20
	Avelin - Warande	3458	17	3458	15
	Lonny - Seuil	4149	14	4149	16
	Mandarins - Warande 1	3780	46	3780	47
	Muhlbach - Scheer	2598	31	2598	25
	Revigny - Vigy	2596	16	2596	19
	Warande - Weppes	3458	22	3458	20



X < 50 % of I<sub>max</sub>

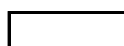


50 ≤ X < 75 % of I<sub>max</sub>



X ≥ 75 % of I<sub>max</sub>

TSO	Voltage	Line (380 kV)	10:30		19:30	
			I <sub>max</sub> (A)	% of I <sub>max</sub>	I <sub>max</sub> (A)	% of I <sub>max</sub>
50 HzT	380 kV	Eisenach - Mecklar (450-2)	2520	35	2520	39
		Hagenwerder - Mikulowa (567)	2520	30	2520	33
		Hagenwerder - Mikulowa (568)	2520	30	2520	33
		Remptendorf - Redwitz (413)	3394	56	3417	59
		Remptendorf - Redwitz (414)	3394	56	3417	59
		Röhrsdorf - Hradec (445)	2520	51	2520	52
		Röhrsdorf - Hradec (446)	2520	51	2520	52
		Vieselbach - Mecklar (449-1)	2520	33	2520	35
		Wolmirstedt - Helmstedt (491-1)	2400	28	2400	30
		Wolmirstedt - Helmstedt (492-2)	2400	28	2400	30
	220 kV	Vierraden - Krajnik (507)	1352	0	1325	0
		Vierraden - Krajnik (508)	1352	0	1325	0



X < 50 % of I<sub>max</sub>



50 ≤ X < 75 % of I<sub>max</sub>



X ≥ 75 % of I<sub>max</sub>

## 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	1	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	08:00 - 09:00	400	Gramme - Courcelles	Gramme - Champion	N-2	105%	220/150	Monceau	TFO		08:30
Curative action: No constraint after opening the tie- line 220 kV Chooz - Monceau											

### 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	02:00 - 07:00 & 20:00 - 22:00	400	Diele	Meeden	axis	118%	400	Diele	Meeden	remaining	04:30
Preventive action : -2 taps on Meeden PSTs ==> 91 % remaining											
Amprion/ Tennet DE	06:00 - 24:00	400	Diele - Niederlangen - Meepen	T line		122%	400	Dorpen West	Hanekefahr		23:30
Preventive action : 2 nodes in Dorpen West ==> 108 % remaining 3 nodes in Hanekefahr ==> 105 % and -10 taps in Diele (from 33 to 23) ==> 95 % remaining (Agreed at the DOPT)											

### 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): **00:30**
- Peak period (07:00 – 23:00): **11:30**

Adaptations made on merged DACFs:

### Off-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**

### Peak:

- SI → IT physical flow adapted to **800 MW**
- Mendrisio-Cagno flow adapted to this schedule: **97 MW**
- PST of Lienz adapted to: **120 MW**
- PST of Camporosso adapted to **200 MW**

## Special topologies

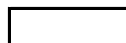
Nodes in South area				
			Off Peak	Peak
380 kV	Swissgrid	Sils	1	1
		Robbia	2	2
	Rte	Génissiat	1	1
		Albertville	1	1
		Grande Ile	1	1
	Terna	Turbigo	1	1
		Baggio	1	1
		Bovisio	<b>1</b>	<b>2</b>
		Ostiglia	1	1

## N state flows Off-Peak & Peak

The I<sub>max</sub> and load values in the table below are extracted from the **adapted** merged TSOs' DACF.

TSO	Voltage	Line (380 kV)	Off Peak		Peak	
			I <sub>max</sub> (A)	% of I <sub>max</sub>	I <sub>max</sub> (A)	% of I <sub>max</sub>
Terna	380 kV	Albertville - Rondissone 1	2370	41	2370	46
		Albertville - Rondissone 2	2370	39	2370	44
		Bulciago - Soazza	2300	27	2300	29
		Cagno - Mendrisio	855	24	855	20
		Musignano - Lavorgo	2270	35	2270	36
		Redipuglia - Divaca	2700	35	2700	35
		Robbia - San Fiorano	2530	22	2530	28
		Robbia - Gorlago	2530	31	2530	34
		Venaus - Villarodin	2715	24	2715	30
	220 kV	Airolo - Ponte	900	12	900	6
		Lienz - Soverzene	750	43	750	38
		Menton - Campo Rosso	1165	43	1165	43
		Padriciano - Divaca	960	36	960	47
		Riddes - Avise	1010	12	1010	10
		Riddes - Valpelline	1010	13	1010	10
		Serra - Pallanzeno	900	19	900	21

For Terna:



X < 50 % of I<sub>max</sub>



50 ≤ X < 75 % of I<sub>max</sub>



X ≥ 75 % of I<sub>max</sub>

### 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	1947	2281	128	790
	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	2214	2428	110	837
	Compensation ratio (calculated from NTC)	37%	50%	4%	9%
	Pentalateral impact on physical flows	-25%	-57%	-4%	-14%

## 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	103% (10')	380	Albertville	Grande Ile	3
		Preventive action: 2 nodes at Grande Ile (isolating Albertville-Grande Ile 3) => 88% remaining								
		No more constraint detected with preventive action above.								

## 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	108% (1')	380	Albertville	Grande Ile	3
		Preventive action: 2 nodes at Grande Ile (isolating Albertville-Grande Ile 3) => 99% remaining								
		No more constraint detected with preventive action above.								

### 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 Pentilateral reduction).

PST	Off Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	423
Rondissone 1 (1/33)	30	627
Rondissone 2 (1/33)	32	657
Camporosso (-32/32)	-17	203
Lienz (-32/32)	11	129
Padriciano (1/33)	6	136
Divaca (-32/32 each)	19	656

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	464
Rondissone 1 (1/33)	30	700
Rondissone 2 (1/33)	32	729
Camporosso (-32/32)	-9	199
Lienz (-32/32)	12	111
Padriciano (1/33)	1	182
Divaca (-32/32 each)	24	657

## Conclusion

CWE: Windstorm is expected for tomorrow in the CWE area starting this night (from 00:00 to 09:00). N-2 list has been used for Rte and Elia during the D-1 studies.

No critical constraint are expected in the CWE area.

CEE: No constraints detected.

CSE: Critical constraint detected on Albertville - Grande Ile 3 that is manageable with topological measures.