

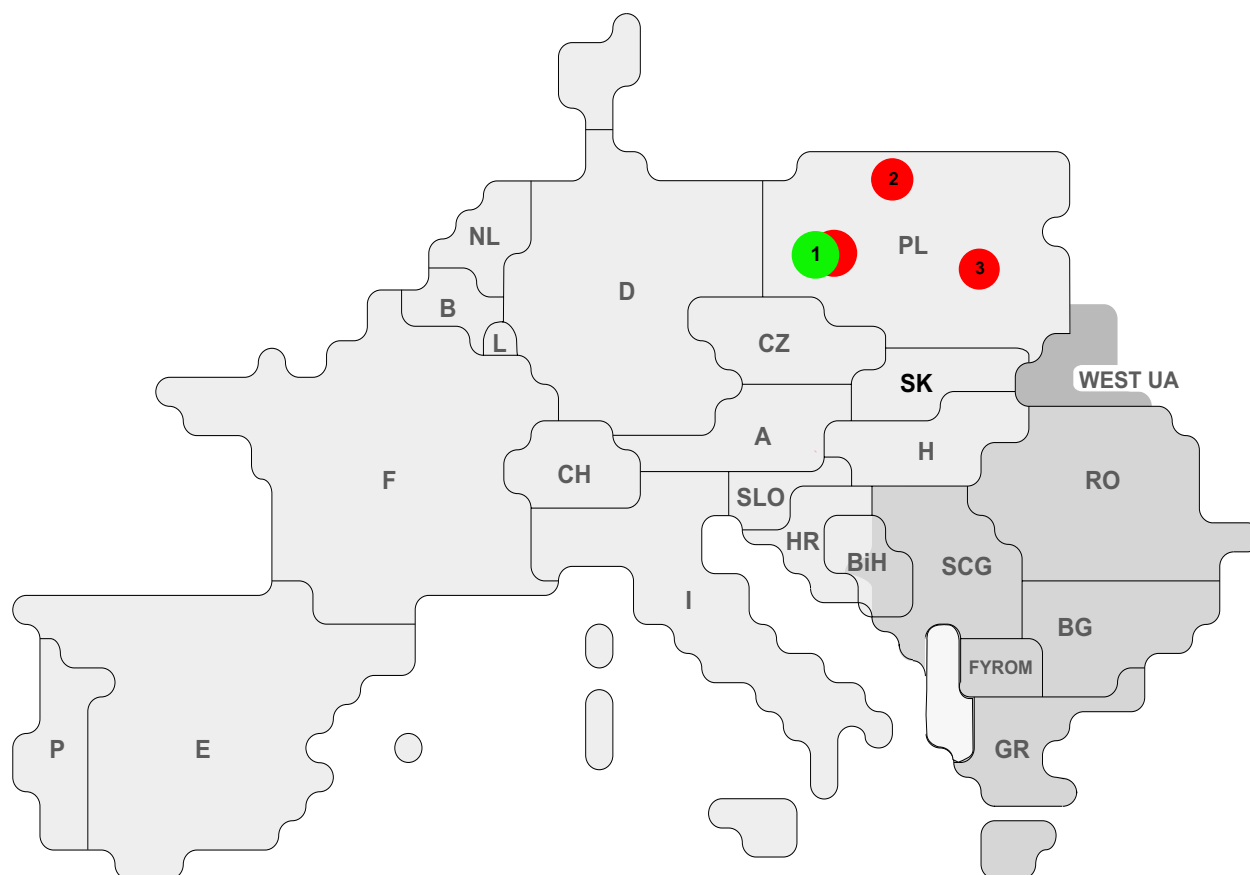
## Reasons:

R3 Overload  
 R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)  
 R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	D	Weisweiler	R5	1430	600	143	0,63
2	H	Mátra 220 kV	R10	343	311	66	4,39
3	D	Oberzier	R5	95	270	21	0,28
4	I	Villavalle	R10	69	230	18	0,39
5	F	Mezerolles	R6	63	531	10	0,64
6	P	Vila Cha	R5	25	0	10	0,00
7	CZ	Mrovka	R5	10	0	6	0,00

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



Reasons:

R3 Overload

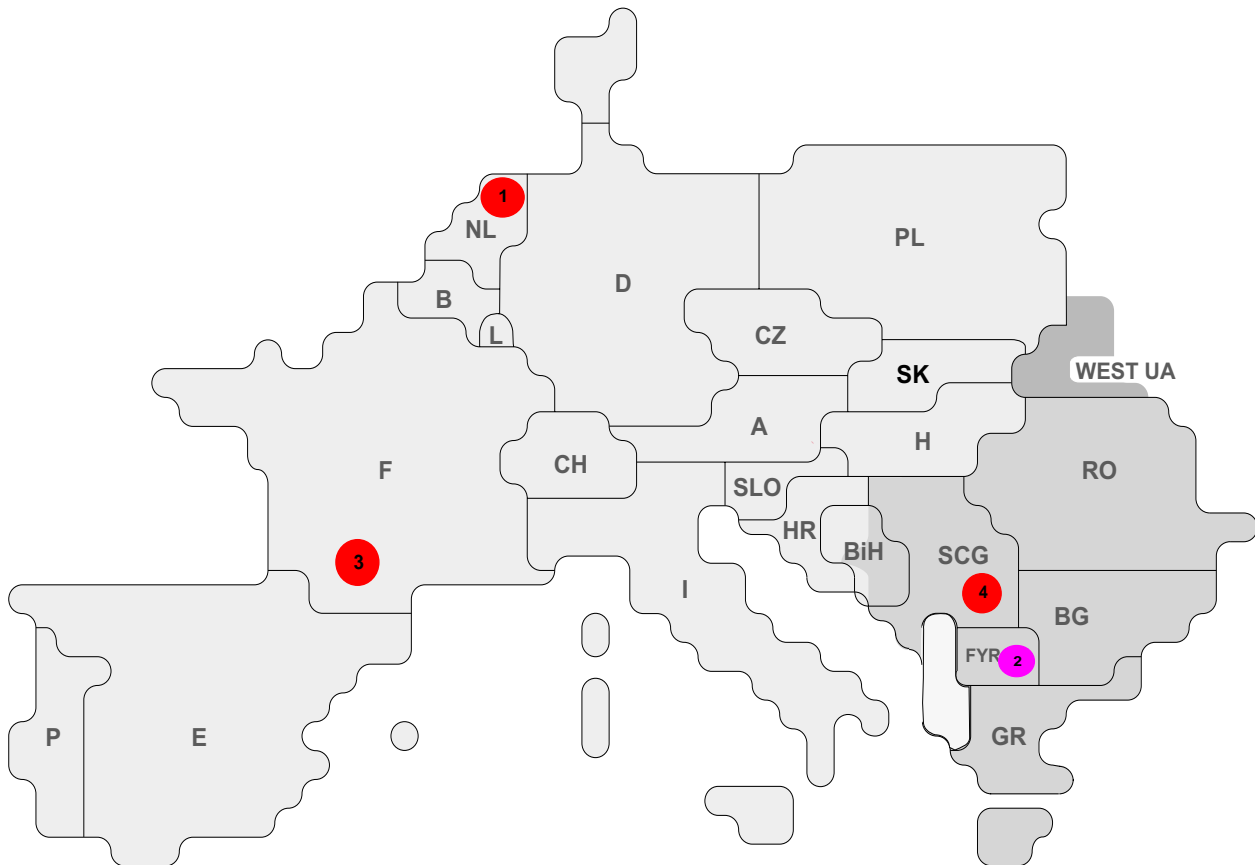
R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	PL	Krosno	R6, R8, R9	185	370	12119	1,44
2	PL	Slupsk	R6	76	600	10	2,33
3	PL	Zmosc	R4	38	150	23	0,58

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



Reasons:

R3 Overload

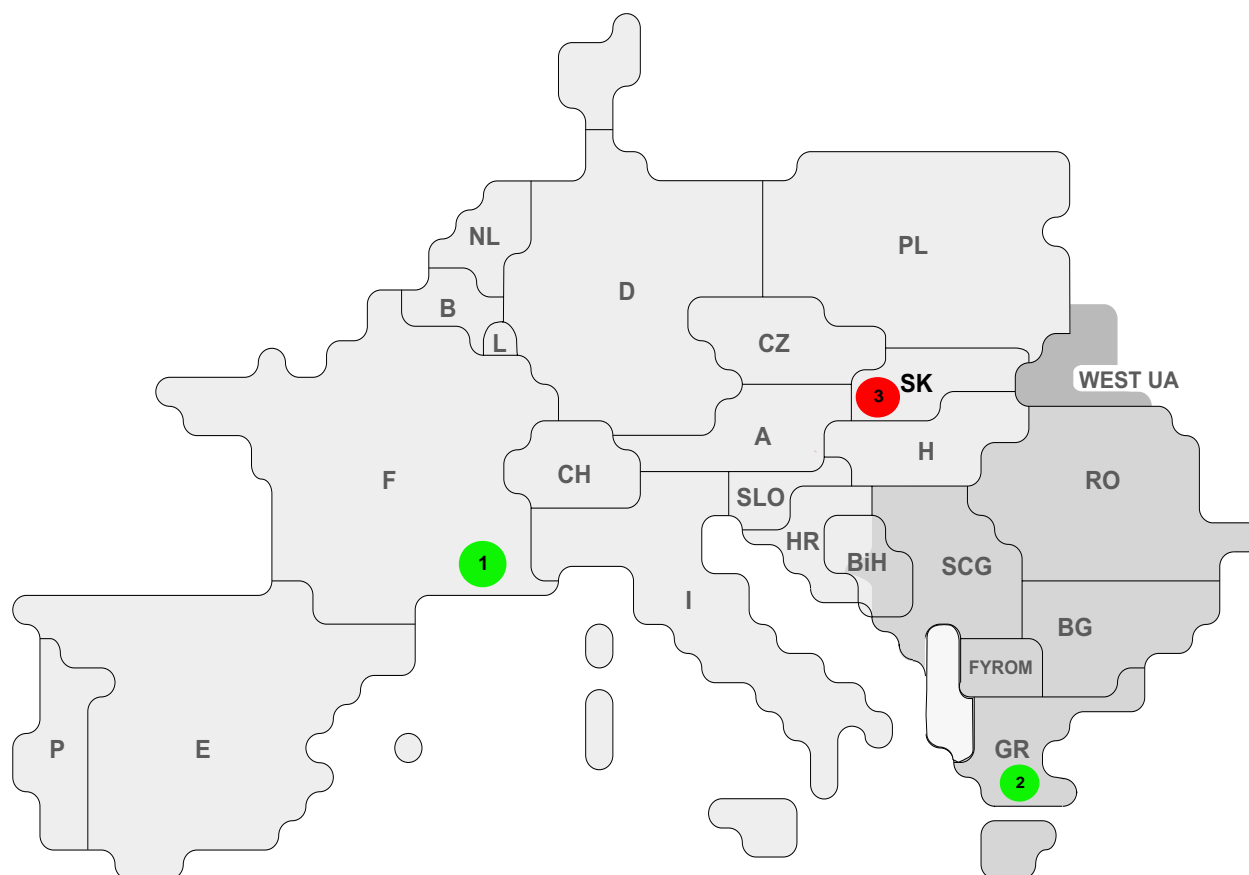
R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	NL	Weierd	R5	750	55	820	0,27
2	FYROM	Bitola2	R10	200	200	74	55,47
3	F	La Mouche	R4	40	82	31	0,10
4	SCG	Krusevac	R4	38	190	12	8,31

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



Reasons:

R3 Overload

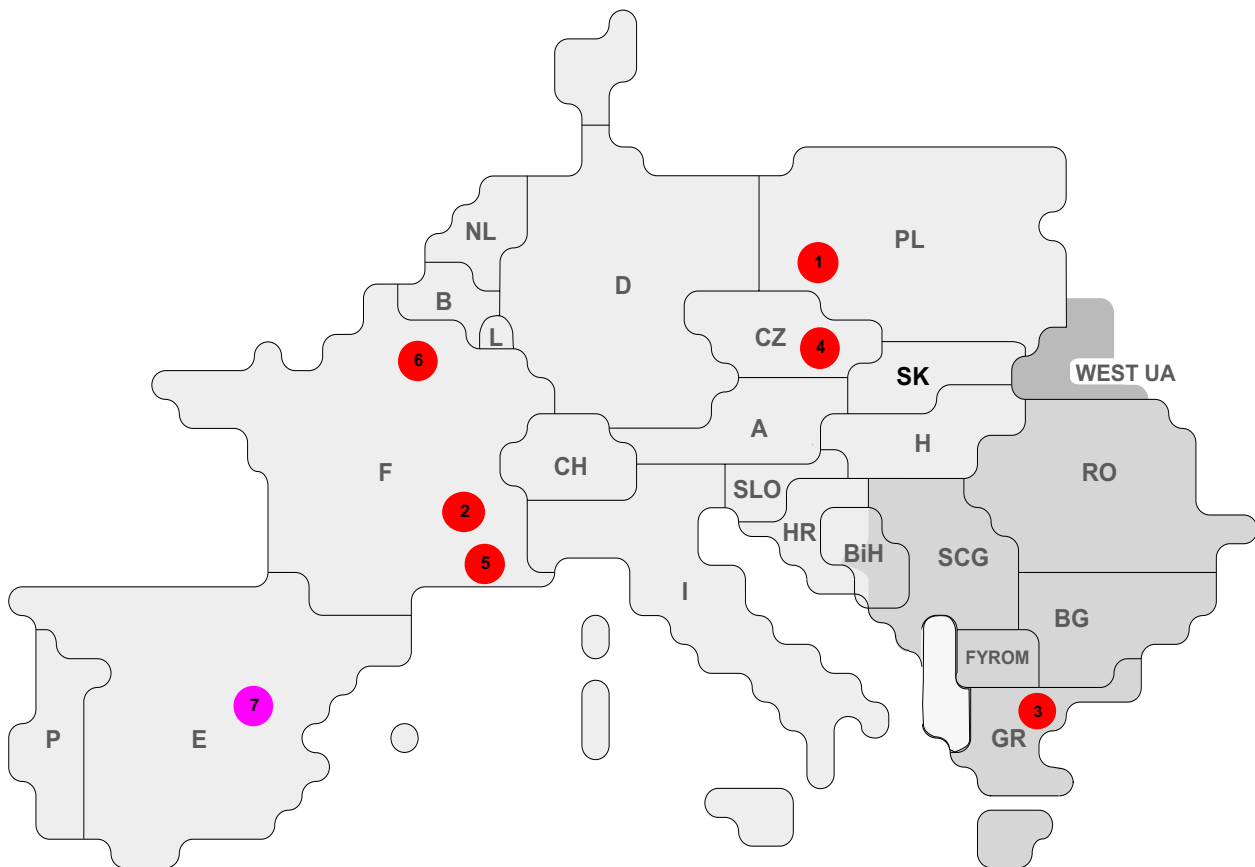
R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	F	Avignon (CNR)	R8	925	56	991	0,07
2	GR	Koumoundourou	R7	50	0	10	3,29
3	SK	H. Zdana	R4	18	104	17	2,07

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



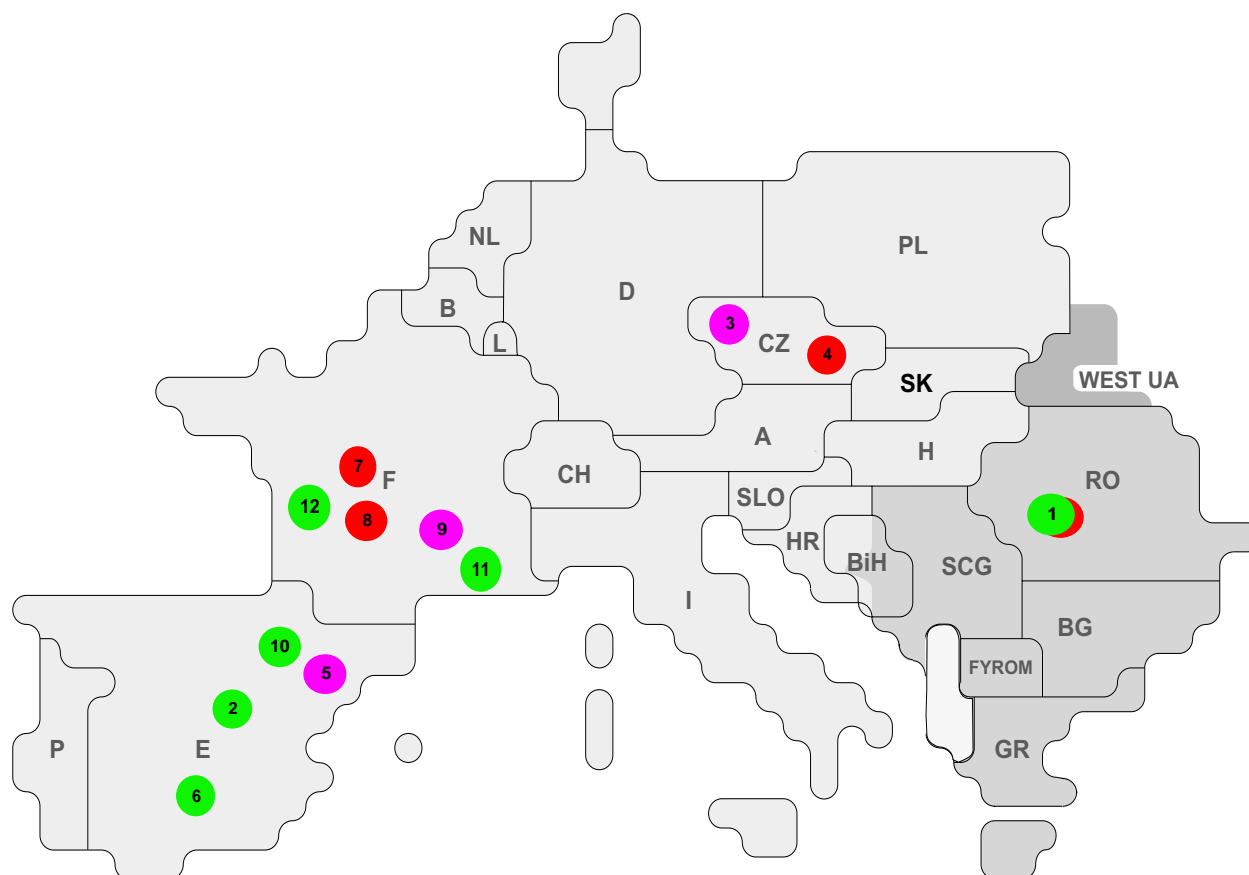
## Reasons:

R3 Overload  
 R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)  
 R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	PL	Rogowiec	R5	390	678	69	2,60
2	F	Génissiat	R6	188	128	88	0,15
3	GR	Ag. Dimitrios	R6	100	600	10	6,53
4	CZ	Sokolnice	R6	88	24	30	0,21
5	F	La Croix	R4	33	56	35	0,07
6	F	Novion	R6	28	10	170	0,01
7	E	Atarfe	R11	13	0	3	0,00

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



Reasons:

R3 Overload

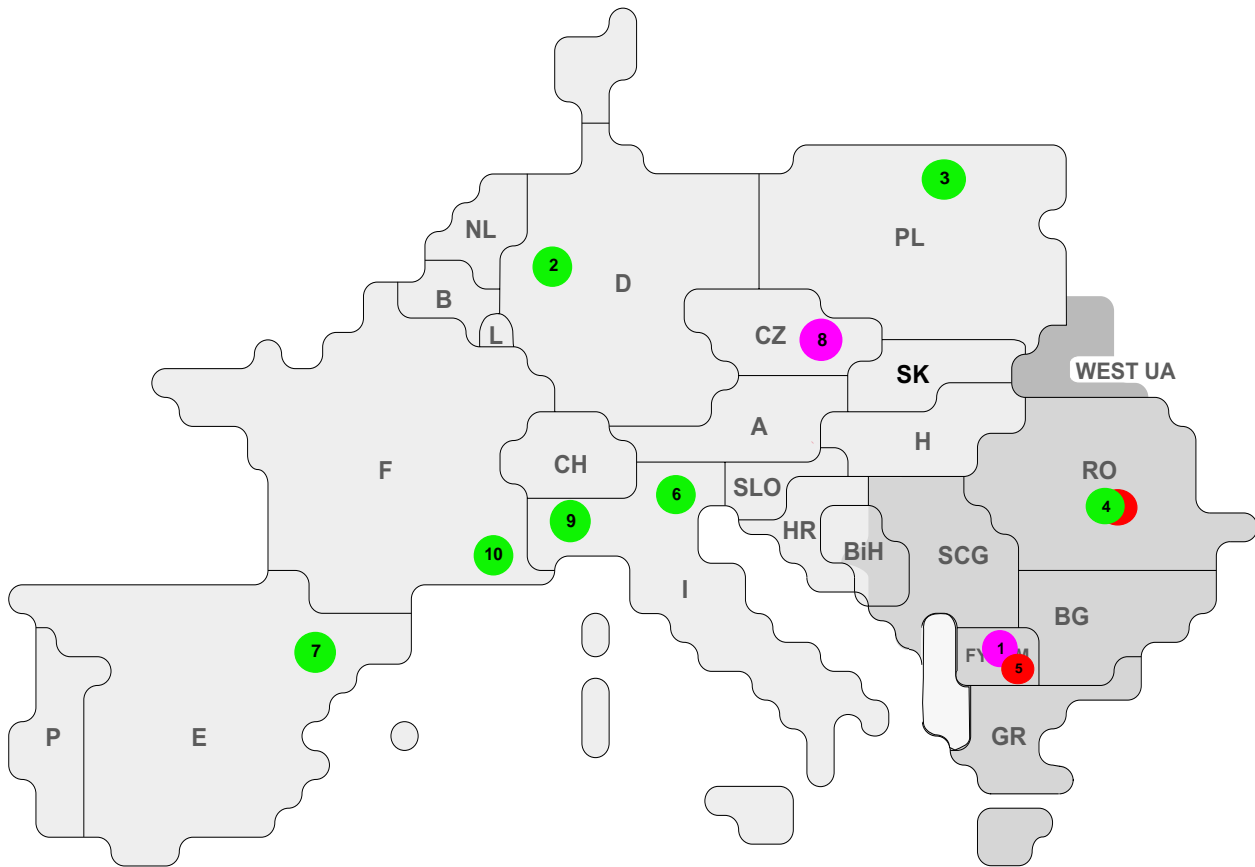
R7, R8, R9 External impacts (animals...)

R4, R5, R6 Failure in the transmission network

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	RO	Tantareni	R5, R8	265	300	53	6,30
2	E	Aluminio	R8	165	0	45	0,00
3	CZ	Sokolnice	R10	88	24	30	0,21
4	CZ	Chrast	R4	84	60	36	0,53
5	E	Canyet	R10	42	1320	9	3,21
6	E	Meson	R8	35	0	21	0,00
7	F	Quatre-écluses	R4	34	17	121	0,02
8	F	Verlhaguet	R4	25	76	31	0,09
9	F	Peyrou	R10	21	63	20	0,08
10	E	San Celoni	R8	20	0	10	0,00
11	F	Boutre	R7	13	2	380	0,00
12	F	Flaud	R8	10	16	40	0,02

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



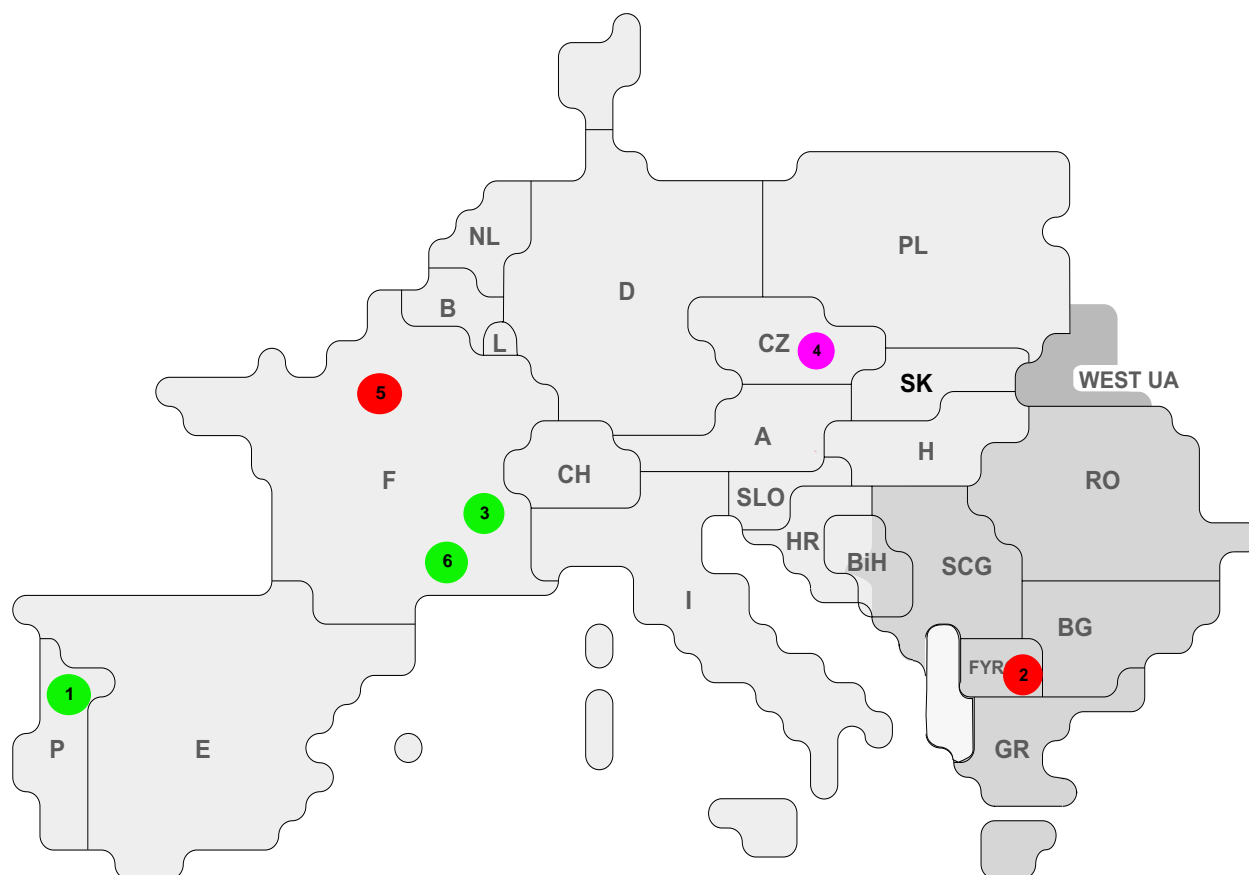
Reasons:

R3 Overload  
 R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)  
 R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [MWh]	Total loss of power [MW]	Restoration time [min]	Equivalent time of interruption <sup>1</sup>
1	FYROM	Skopje4	R10	570	280	260	39,71
2	D	Gersteinwerk	R8	376	610	37	0,64
3	PL	Zarnow iec	R7	215	300	600	1,14
4	RO	Urechesti	R4, R8	135	540	15	9,77
5	FYROM	Dubrovo	R5	41	41	26	5,81
6	I	Buia	R4	29	35	1	0,06
7	E	Constanti	R7	29	0	7	0,00
8	CZ	Slavetice	R10	24	0	13	0,00
9	I	Pallanzeno	R8	14	32	0	0,05
10	F	Lingo	R8	12	3	236	0,00

<sup>1</sup> ( year [in min] \* power loss) / consumption last 12 months



Reasons:

R3 Overload

R7, R8, R9 External impacts (animals...)

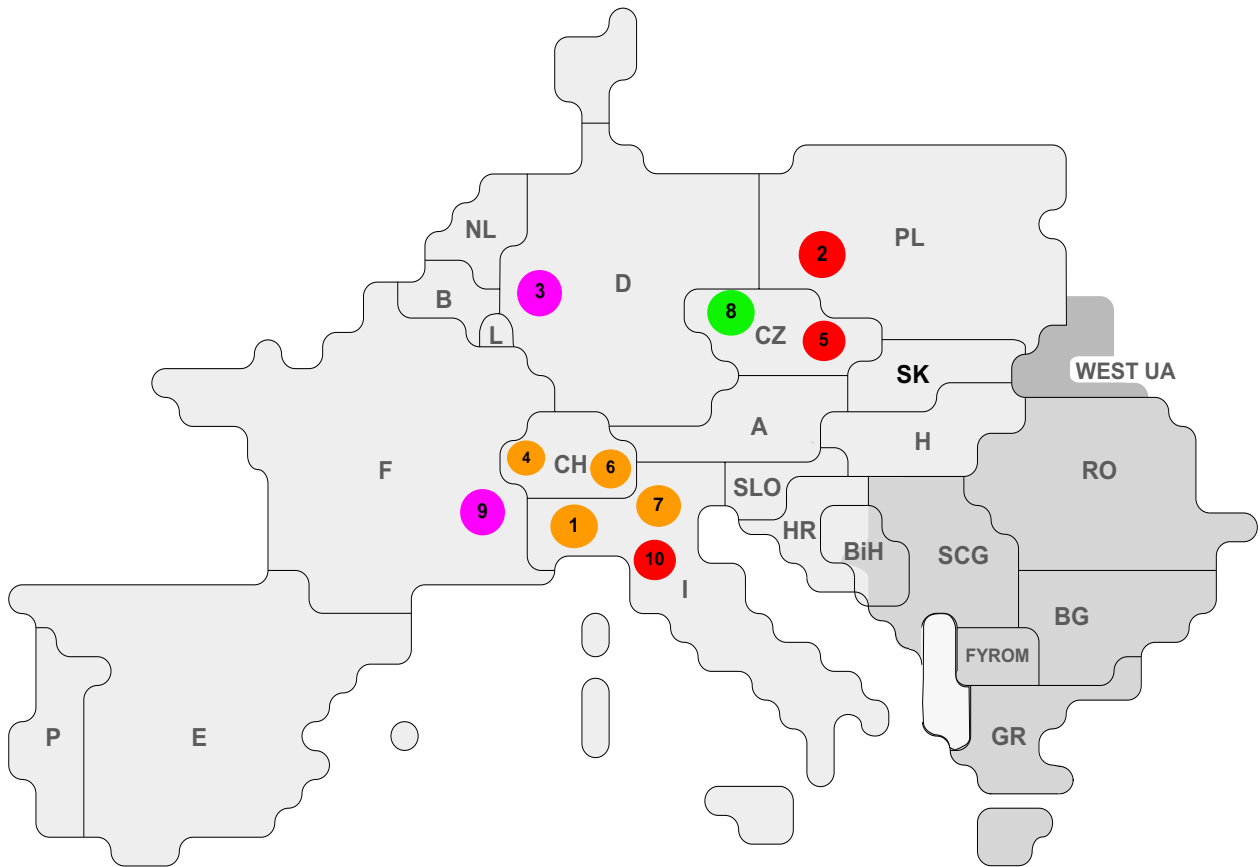
R4, R5, R6 Failure in the transmission network

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	P	Palmela	R9	811	1270	120	15,83
2	FYROM	Skopje4	R4	120	120	10	15,14
3	F	Malgovert	R8	62	70	54	0,08
4	CZ	Chodov	R10	48	0	14	0,00
5	F	Pasquier	R4	17	99	11	0,12
6	F	Boutre	R7	12	1	738	0,00

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months





## Reasons:

R3 Overload

R4, R5, R6 Failure in the transmission network

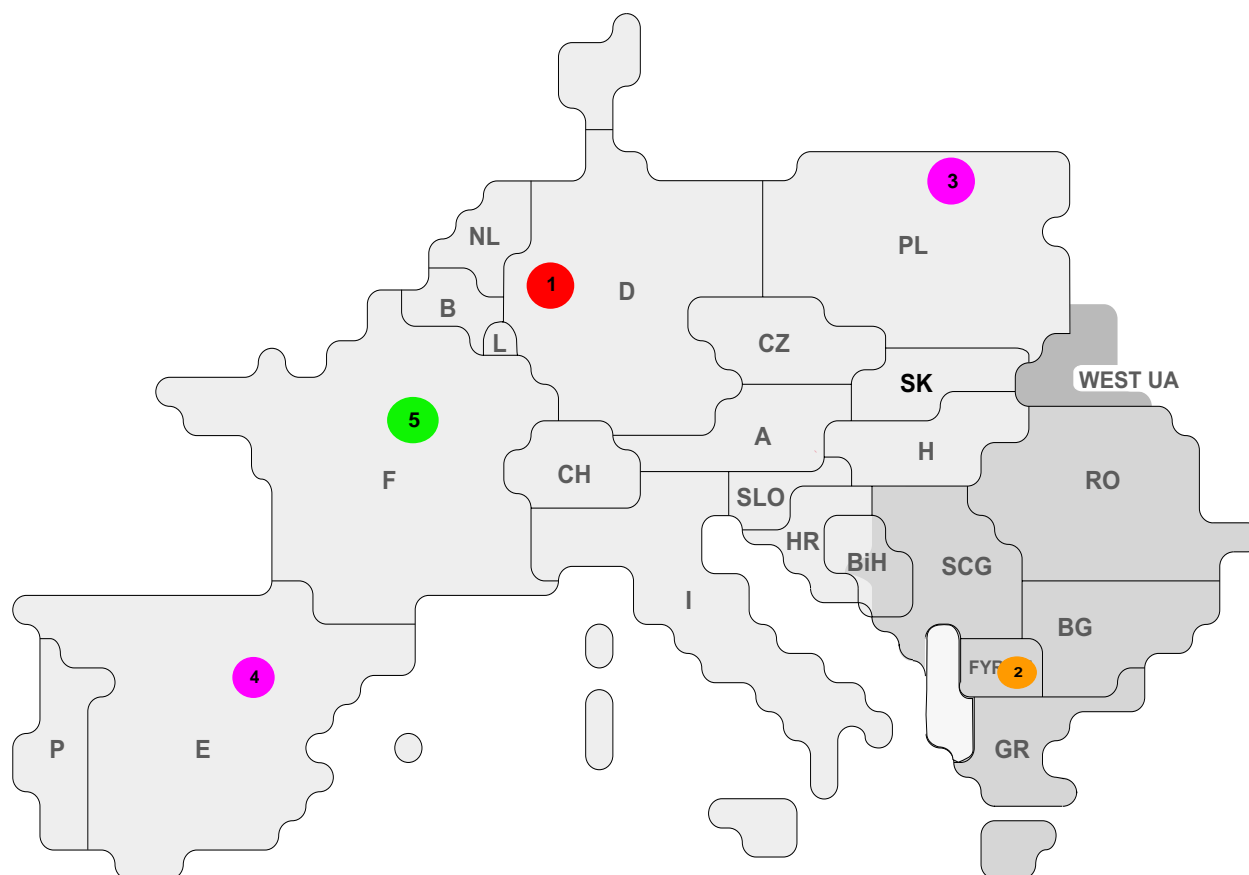
R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [MWh]	Total loss of power [MW]	Restoration time [min]	Equivalent time of interruption <sup>1</sup>
1	I	All <sup>2</sup>	R3	180000	-	1092	-
2	PL	Rogowiec	R6	540	1750	764	6,65
3	D	Brauweiler	R10	477	260	110	0,27
4	CH	Sils	R3	370	1700	17	14,96
5	CZ	Krasikov	R4	111	230	28	2,02
6	CH	Mettlen	R3	70	0	20	0,00
7	I	Montecorvino	R3	15	150	6	0,25
8	CZ	Sokolnice	R7	14	20	37	0,18
9	F	Pontarlier	R11	11	49	16	0,06

<sup>1</sup> ( year [in min] \* power loss) / consumption last 12 months

<sup>2</sup> Italian Black-out - complete restoration in 4 stages. More details in the UCTE website ([www.ucte.org](http://www.ucte.org)).



Reasons:

R3 Overload

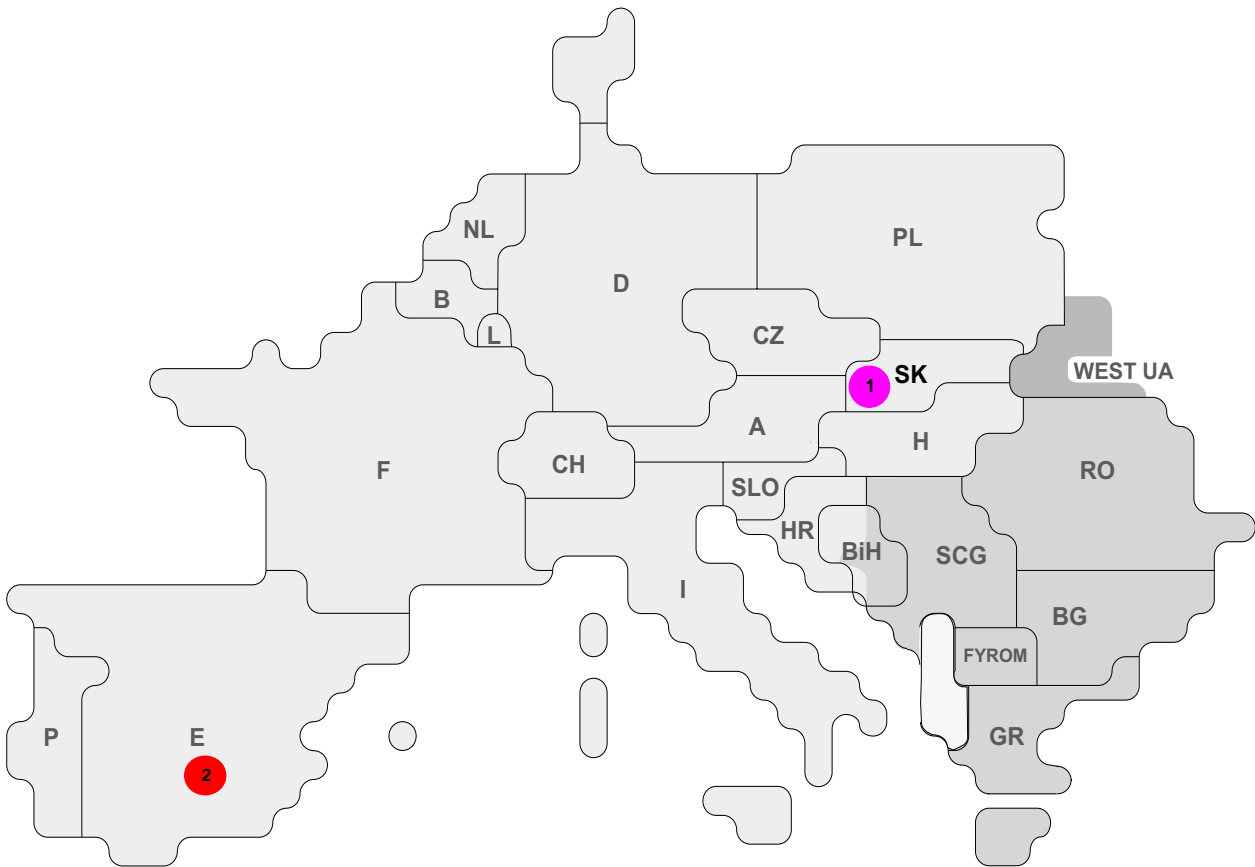
R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	D	Kusenhorst	R4	469	320	88	0,33
2	FYROM	Skopje4	R3	300	150	6420	15,33
3	PL	Slupsk	R10	180	400	27	1,52
4	E	Puentes Garcia Rodriguez	R11	27	0	2	0,00
5	F	Damery	R8	21	48	30	0,06

<sup>1</sup> ( year [in min] \* power loss ) / consumption last 12 months



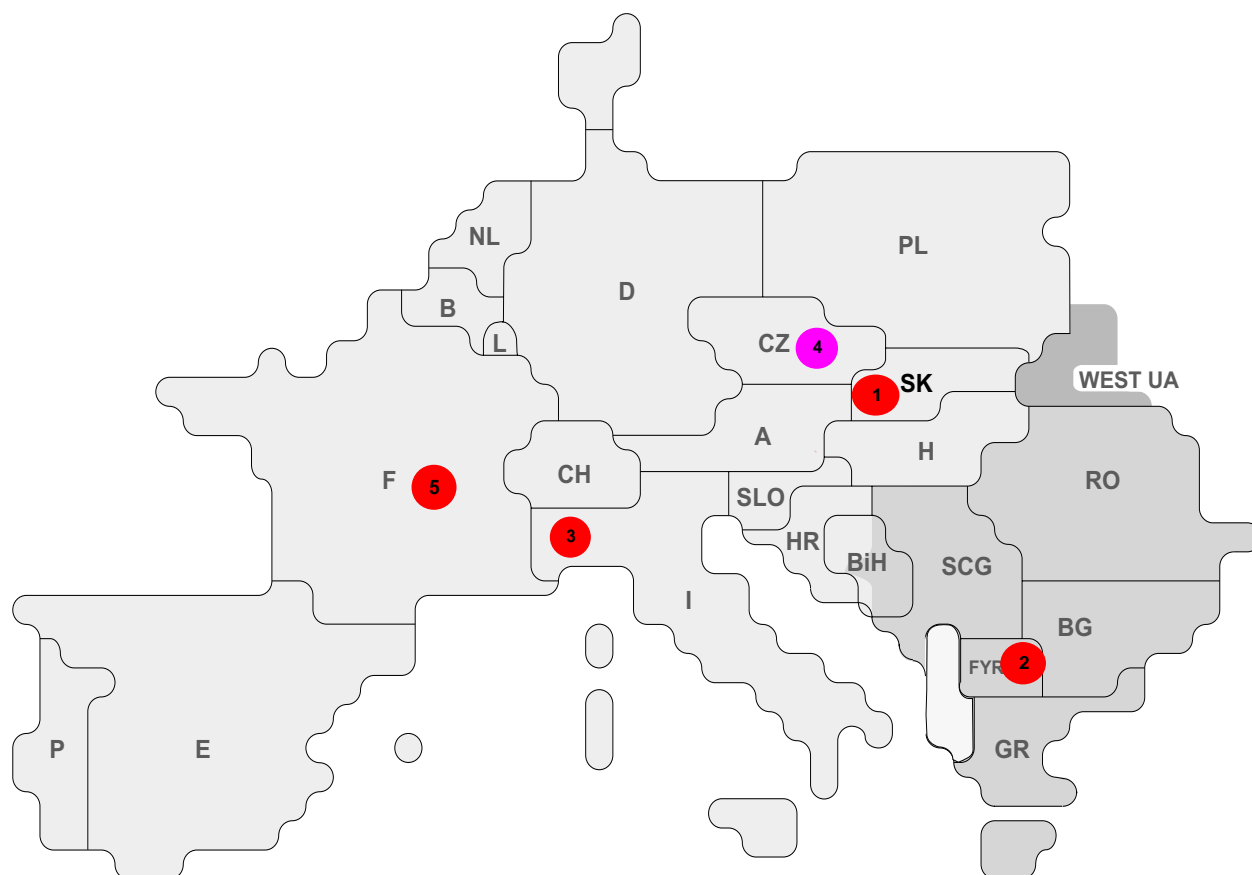
Reasons:

**R3** Overload  
**R4, R5, R6** Failure in the transmission network

**R7, R8, R9** External impacts (animals...)  
**R10, R11** Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	SK	EVO1	R11	943	220	437	4,38
2	E	Sabon 220 kV	R5	13	0	7	0,00

<sup>1</sup> ( year [in min] \* power loss) / consumption last 12 months



Reasons:

R3 Overload

R4, R5, R6 Failure in the transmission network

R7, R8, R9 External impacts (animals...)

R10, R11 Other reasons

Nbr	Country	Substation	Reason	Energy not supplied [ MWh ]	Total loss of power [ MW ]	Restoration time [ min ]	Equivalent time of interruption <sup>1</sup>
1	SK	EVO	R6	13377	440	1998	8,77
2	FYROM	Skopje5	R5	200	170	87	14,17
3	I	Brugherio	R6	55	46	1	0,08
4	CZ	Liskovec	R10	52	140	12	1,23
5	F	Bayet	R6	10	26	25	0,03

<sup>1</sup> ( year [in min] \* power loss) / consumption last 12 months

Inventory											
Country	Conventional thermal units						Total			Nuclear thermal units	
	10 MW ≤ x < 200 MW		200 MW ≤ x < 400 MW		≥ 400 MW		Number	MW	Number	MW	
	Number	MW	Number	MW	Number	MW					Number
B	75	3252	11	3335	3	1380	89	7967	7	5761	
D <sup>1</sup>	403	23572	66	20178	47	27749	516	71499	20	22246	
E	367	10331	41	13318	12	6902	420	30551	9	7694	
F	170	5668	29	7168	16	9640	215	22476	59	63363	
GR	21	2330	17	4735	0	0	38	7065	0	0	
I	1834	22881	69	21543	20	12214	1923	56638	0	0	
SLO <sup>2</sup>	2	267	1	291	1	662	4	1220	1	670	
HR	24	1162	2	508	0	0	26	1670	0	0	
BiH	9	512	6	1445	0	0	15	1957	0	0	
FYROM <sup>2</sup>	1	125	4	885	0	0	5	1010	0	0	
SCG	14	1104	15	4056	2	1240	31	6400	0	0	
L	0	0	1	385	0	0	1	385	0	0	
NL <sup>2</sup>	95	3887	19	5783	13	7367	127	17037	1	449	
A	57	2941	9	2796	0	0	66	5737	0	0	
P	20	1161	14	4104	0	0	34	5265	0	0	
CH	17	292	0	0	0	0	17	292	5	3220	
CZ	169	9594	0	0	1	460	170	10054	6	3537	
H	92	3563	14	3027	0	0	106	6590	4	1772	
PL	230	11784	72	18458	2	1095	304	31337	0	0	
SK	24	2068	1	214	0	0	25	2282	6	2640	
RO	83	6322	11	3039	0	0	94	9361	1	655	
BG	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
<b>UCTE</b>	<b>3707</b>	<b>112816</b>	<b>402</b>	<b>115268</b>	<b>117</b>	<b>68709</b>	<b>4226</b>	<b>296793</b>	<b>119</b>	<b>112007</b>	
West UA <sup>3</sup>	16	2500	0	0	0	0	16	7967	0	0	

<sup>1</sup> Values conventional thermal units as of December 2000

<sup>2</sup> Values conventional thermal units as of December 2002

<sup>3</sup> West UA represents the so-called Burshtyn Island synchronously interconnected with UCTE

Country	Commissioning				Decommissioning			
	Tc		Tn		Tc		Tn	
	Number	MW	Number	MW	Number	MW	Number	MW
B	1	18	0	0	0	0	0	0
D	1	200	0	0	3	1000	1	640
E	3	1469	0	0	4	513	0	0
F	4	278	0	0	0	0	0	0
GR	1	292	0	0	0	0	0	0
I	153	1135	0	0	85	121	0	0
SLO	0	0	0	0	0	0	0	0
HR	0	0	0	0	0	0	0	0
BiH	0	0	0	0	0	0	0	0
FYROM	0	0	0	0	0	0	0	0
SCG	0	0	0	0	0	0	0	0
L	0	0	0	0	0	0	0	0
NL	2	111	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0
P	2	421	0	0	6	132	0	0
CH	0	10	0	0	0	0	0	0
CZ	0	0	1	950	0	0	0	0
H	6	396	0	0	0	0	0	0
PL	0	0	0	0	13	367	0	0
SK	0	0	0	0	0	0	0	0
RO	0	0	0	0	3	743	0	0
BG	0	0	0	0	0	0	0	0
<b>UCTE</b>	<b>173</b>	<b>4330</b>	<b>1</b>	<b>950</b>	<b>114</b>	<b>2876</b>	<b>1</b>	<b>640</b>
West UA <sup>1</sup>	0	0	0	0	0	0	0	0

<sup>1</sup> West UA represents the so-called Burshtyn Island synchronously interconnected with UCTE

Inventory of hydro power units										
Country	1 MW ≤ x < 10 MW		10 MW ≤ x < 50 MW		50 MW ≤ x < 100 MW		≥ 100 MW		Total	
	Number	MW	Number	MW	Number	MW	Number	MW	Number	MW
B	47	86	5	164	0	0	6	1164	58	1414
D <sup>1</sup>	234	898	78	1648	14	1026	15	4841	341	8413
E	435	1397	127	2893	44	3020	40	10779	646	18089
F	182	869	170	4170	40	2961	58	16012	450	24012
GR	6	31	3	63	2	120	11	2845	22	3059
I	583	1924	232	5533	29	1945	39	11179	883	20581
SLO <sup>2</sup>	2	18	8	222	5	296	2	242	17	778
HR	22	69	21	568	6	453	8	978	57	2068
BIH	2	10	14	305	12	774	7	945	35	2034
FYROM <sup>3</sup>	7	32	3	73	2	180	1	150	13	435
SCG	11	30	37	870	8	583	11	2014	67	3497
L	3	20	1	11	0	0	1	1096	5	1127
NL <sup>3</sup>	0	0	3	35	0	0	0	0	3	35
A	208	650	101	2526	20	1492	26	6698	355	11366
P	91	316	32	939	31	2008	7	1275	161	4538
CH	175	606	103	2467	39	2583	37	7527	354	13183
CZ	50	145	7	168	0	0	5	1711	62	2024
H	45	48	0	0	0	0	0	0	45	48
PL	57	163	5	90	3	195	5	1688	70	2136
SK	29	176	36	700	10	820	6	734	81	2430
RO	167	944	81	1744	17	1138	8	1416	273	5242
BG	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>UCTE</b>	<b>2356</b>	<b>8432</b>	<b>1067</b>	<b>25189</b>	<b>282</b>	<b>19594</b>	<b>293</b>	<b>73294</b>	<b>3998</b>	<b>126508</b>
West UA <sup>4</sup>	3	27	0	0	0	0	0	0	3	27

<sup>1</sup> Values as of December 2000

<sup>2</sup> Values as of December 2001

<sup>3</sup> Values as of December 2002

<sup>4</sup> West UA represents the so-called Burshtyn Island synchronously interconnected with UCTE

Country	Commissioning		Decommissioning	
	Number	MW	Number	MW
B	0	0	0	0
D	1	528	0	0
E	0	0	0	0
F	0	0	2	7
GR	0	0	0	0
I	56	44	32	10
SLO	0	0	0	0
HR	5	97	5	90
BiH	0	0	0	0
FYROM	0	0	0	0
SCG	0	0	0	0
L	0	0	0	0
NL	0	0	0	0
A	0	0	0	0
P	1	120	0	0
CH	2	3	1	2
CZ	0	0	0	0
H	0	0	0	0
PL	4	8	0	0
SK	0	0	0	0
RO	1	1	0	0
BG	0	0	0	0
<b>UCTE</b>	<b>70</b>	<b>802</b>	<b>40</b>	<b>108</b>
West UA <sup>1</sup>	0	0	0	0

<sup>1</sup> West UA represents the so-called Burshtyn Island synchronously interconnected with UCTE