Monthly report

December 2012

Monthly provisional values as of 04 April 2013

European Network of
Transmission System Operators
for Electricity

entsoe

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General remarks and abbreviations used in the tables

- All values of generation and consumption on page 2, 11 and 12 are calculated to represent 100% of the national values.
- All data with the country code GB represents monthly statistical data as sum of England, Scotland and Wales.
- All data with the country code NI represents the monthly statistical data of the Northern Ireland.
- CET Central European Time

1 Electricity supply situation of the countries

December 2012

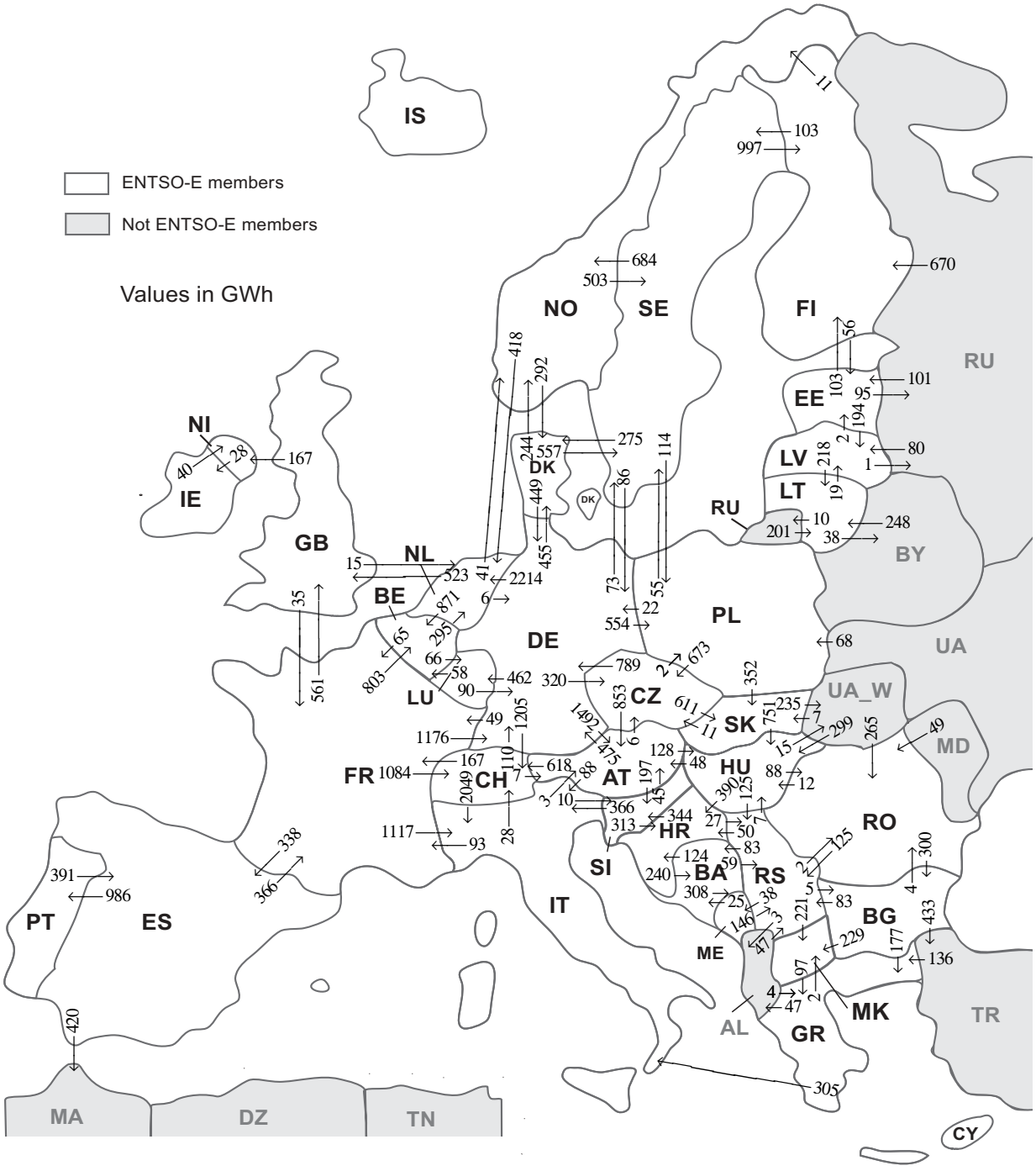
Coun-tries	Net generation in GWh								Exchange balance	Pump	Consumption	
	Therm. nuclear	Fossil fuels	Hydro power	Other renew.	of which wind	of which solar	Non identi-fiable	Total	in GWh	in GWh	monthly [GWh]	var. [%]
AT	0	2338	3058	0	0	0	719	6115	865	666	6314	1,8
BA	0	742	541	0	0	0	0	1283	-144	0	1139	-1,6
BE[2]	2811	2641	165	718	432	34	0	6335 [1]	1313	166	7482	-1,5
BG	1399	2234	276	147	120	27	0	4056	-628	112	3316	4,8
CH	2442	203	2916	126	6	0	0	5687 [1]	597	190	6094	0,9
CY	0	313	0	17	17	0	0	330	0	0	330	-15,6
CZ	2525	4217	266	85	44	42	0	7093 [1]	-1245	123	5725	0,1
DE[3]	8921	33294	2427	8795	5642	355	0	53437 [1]	-3636	770	49031	1,2
DK	0	2178	2	1310	1082	0	0	3490 [1]	-227	0	3263	3,4
EE	0	994	3	97	52	0	0	1094	-236	0	858	16,1
ES	4359	10333	2941	6542	5503	566	28	24203	-1080	546	22577	4,2
FI	2046	2516	1376	1082	45	0	79	7099 [1]	1593	0	8692	16,4
FR	39912	5267	6519	3021	2270	221	0	54719	-4432	651	49636	2,8
GB	5866	21277	658	3094	1671	0	0	30895	861	351	31406	0,0
GR	0	3578	590	418	312	89	0	4586 [1]	59	18	4627	2,3
HR	0	439	840	58	48	0	0	1337	265	13	1589	0,2
HU	1430	1283	21	179	60	0	0	2913	530	0	3443	-0,1
IE	0	1729	125	473	463	0	15	2342 [1]	65	53	2354	-3,2
IS	0	0	1079	431	0	0	0	1510	0	0	1510	1,2
IT	0	16279	3753	3019	1833	749	0	23051	3790	214	26627	-3,6
LT	0	295	92	95	71	0	0	482 [1]	601	86	997	5,2
LU	0	130	102	18	14	0	0	250	380	127	503	-3,1
LV	0	295	335	41	12	0	0	671	71	0	742	-2,8
ME[4]	0	115	74	0	0	0	0	189	207	0	396	n.a.
MK	0	445	93	0	0	0	0	538	354	0	892	-3,4
NI	0	527	1	114	117	0	0	642	-180	0	462	-45,0
NL	383	7168	0	1688	688	n.a.	0	9239	1491	0	10730	-3,1
NO	0	340	14092	187	187	0	0	14619 [1]	-255	56	14308	15,1
PL[5]	0	12202	202	1220	489	0	0	13624 [1]	-364	61	13199	0,7
PT	0	1566	1075	1282	1028	20	0	3923 [1]	595	191	4327	-1,6
RO	911	2752	853	412	395	n.a.	0	4928	-31	6	4891	0,0
RS	0	3161	898	0	0	0	0	4059	204	13	4250	40,1
SE	6119	821	7224	1846	670	0	0	16010 [1]	-851	0	15159	12,8
SI	519	370	388	0	0	0	0	1277	-176	0	1101	2,5
SK	1331	640	346	71	0	13	111	2499 [1]	-28	40	2431	0,7
ENTSO-E	**80974**	**142682**	**53331**	**36586**	**23271**	**2116**	**952**	**314525 [1]**	**328**	**4453**	**310401**	**n.a.**

[1] Including deliveries from industry
[2] The reported figures are best estimates based on actual measurements and extrapolations.
[3] The reported figures are best estimates based on actual inquiries, measurements and extrapolations.
[4] National monthly values as of December 2011
[5] Operational data. Other renewable includes energy from biomass co-firing in conventional thermal units.

All representativities of the national generation and consumption values on page 2 used to calculate values at a representativity of 100% as stated in the table above:

Coun-tries	Representativities of the national values in %					
	Thermal nuclear	Fossil fuels	Hydro power	Other renewable	Non identi-fiable	Consumption
AT	100	100	100	100	100	100
BA	100	100	100	100	100	100
BE	100	100	100	100	100	100
BG	100	100	100	100	100	100
CH	100	100	100	100	100	100
CY	100	100	100	100	100	100
CZ	100	100	100	100	100	100
DE	100	100	100	100	100	100
DK	100	100	100	100	100	100
EE	100	100	100	100	100	100
ES	100	100	100	100	100	100
FI	100	100	100	100	100	100
FR	100	100	100	100	100	100
GB	100	96	89	54	100	100
GR	100	100	100	100	100	100
HR	100	100	100	100	100	100
HU	100	100	100	100	100	100
IE	100	100	100	100	100	100
IS	100	100	100	100	100	100
IT	100	100	100	100	100	100
LT	100	100	100	100	100	100
LU	100	100	100	100	100	100
LV	100	100	100	100	100	100
ME	100	100	100	100	100	100
MK	100	100	100	100	100	100
NI	100	100	100	100	100	100
NL	100	100	100	100	100	100
NO	100	100	100	100	100	100
PL	100	100	100	100	100	100
PT	100	100	100	100	100	100
RO	100	100	100	100	100	100
RS	100	100	100	100	100	100
SE	100	100	100	100	100	100
SI	100	100	100	100	100	100
SK	100	100	100	100	100	100

3 Physical energy flows



Sum of physical energy flows between ENTSO-E countries: **33757 GWh**[1]

Total physical energy flows: **37230 GWh**[1]

[1] Sum of physical energy flows without exchanges between ME-AL and NO-RU.

Not ENTSO-E members:
Albania, Belarus, Morocco, Republic of Moldavia, Republic of Turkey, Russia, Ukraine and Ukraine West

These physical energy flows were measured on the cross-frontier transmission lines (≤ 110 kV) listed in table characteristics of the cross-frontier lines published in the Statistical Yearbook. These values may differ from the official statistics and the exchange balances on page 2.

Outside flows countries	Inside flows of the countries																														
	AT	BA	BE	BG	CH	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IT	LT	LU	LV	ME	MK	NI	NL	NO	PL	PT	RO	RS	SE	SI	SK	Other III[1]
AT	-	-	-	-	618	6	475	-	-	-	-	-	-	-	-	128	-	88	-	-	-	-	-	-	-	-	-	-	-	-	197	-	-
BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124	-	-	-	-	-	-	308	-	-	-	-	-	-	-	59	-	-	-	-
BE	-	-	-	-	-	-	-	-	-	-	-	65	-	-	-	-	-	-	-	66	-	-	-	-	295	-	-	-	-	-	-	-	-	-
BG	-	-	-	-	-	-	-	-	-	-	-	-	-	177	-	-	-	-	-	-	-	-	229	-	-	-	-	-	4	83	-	-	-	433
CH	7	-	-	-	-	-	110	-	-	-	-	167	-	-	-	-	-	2049	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CZ	853	-	-	-	-	-	789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	611	-
DE	1492	-	-	-	1205	320	-	455	-	-	-	49	-	-	-	-	-	-	-	462	-	-	-	-	2214	-	554	-	-	-	73	-	-	-
DK	-	-	-	-	-	-	449	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	244	-	-	-	-	557	-	-	-
EE	-	-	-	-	-	-	-	-	-	-	103	-	-	-	-	-	-	-	-	-	194	-	-	-	-	-	-	-	-	-	-	-	-	95
ES	-	-	-	-	-	-	-	-	-	-	-	366	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	986	-	-	-	-	-	420
FI	-	-	-	-	-	-	-	-	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	103	-	-	0
FR	-	-	803	-	1084	-	1176	-	-	338	-	-	561	-	-	-	-	1117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	167	15	-	-	-	-	-	-	-	-	-
GR	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	305	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	47
HR	-	240	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	27	-	344	-	-
HU	48	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	-	-	-	-	-	-	-	-	-	-	-	-	88	125	-	-	0	15
IE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-
IT	3	-	-	-	28	-	-	-	-	-	-	93	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-
LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	48
LU	-	-	58	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
ME	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	146	-	-	-	n.a.
MK	-	-	-	0	-	-	-	-	-	-	-	-	-	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-
NI	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NL	-	-	871	-	-	-	6	-	-	-	-	-	523	-	-	-	-	-	-	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-
NO	-	-	-	-	-	-	-	292	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	418	-	-	-	-	503	-	-	-	n.a.
PL	-	-	-	-	-	673	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	-	352	0
PT	-	-	-	-	-	-	-	-	-	391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RO	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	-	1
RS	-	83	-	5	-	-	-	-	-	-	-	-	-	-	50	7	-	-	-	-	-	38	221	-	-	-	-	-	2	-	-	-	-	3
SE	-	-	-	-	-	-	86	275	-	-	997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	684	114	-	-	-	-	-	-	-
SI	45	-	-	-	-	-	-	-	-	-	-	-	-	-	313	-	-	366	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SK	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	751	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	235
Other III[1]	-	-	-	0	-	-	-	-	101	0	670	-	-	140	-	299	-	-	449	-	80	n.a.	-	-	-	n.a.	68	-	314	47	-	-	7	-

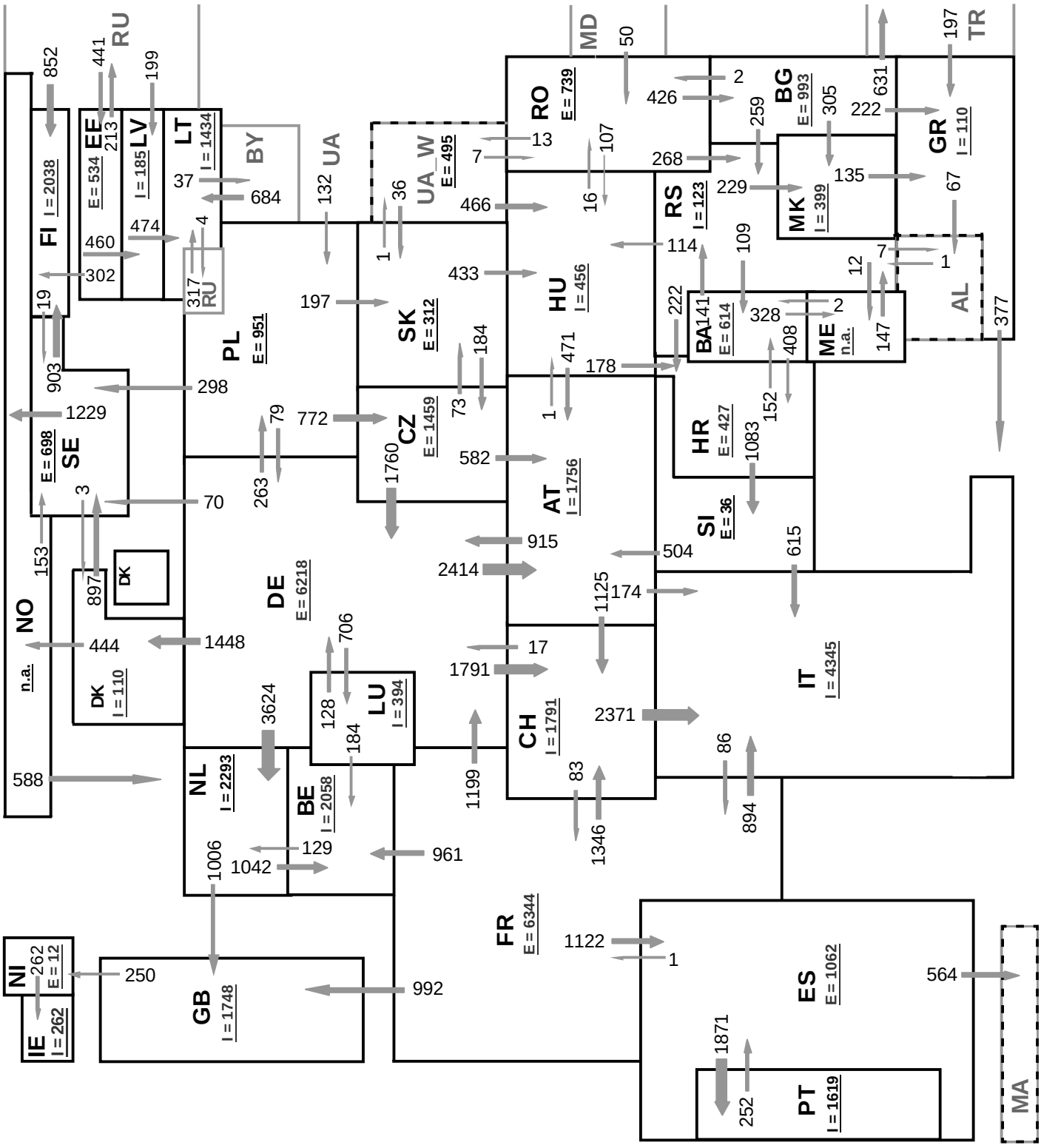
Other III[1]: Albania, Belarus, Morocco, Republic of Moldavia, Republic of Turkey, Russia, Ukraine and Ukraine-West

Sum of the monthly energy flows inside and outside of each country in GWh

	flows inside	flows outside
AT	2448	1512
BA	348	491
BE	1732	426
BG	305	926
CH	2935	2333
CZ	1010	2255
DE	3203	6824
DK	1022	1250
EE	159	392
ES	729	1772
FI	1770	170
FR	775	5079
GB	1084	217
GR	414	354
HR	877	611
HU	1197	666
IE	28	40

	flows inside	flows outside
IT	3925	134
LT	667	67
LU	528	148
LV	293	221
ME	n.a.	n.a.
MK	452	97
NI	207	28
NL	2942	1441
NO	n.a.	n.a.
PL	738	1102
PT	986	391
RO	408	438
RS	612	409
SE	1291	2156
SI	551	724
SK	970	997
ENTSO-E	35932	35055

5 Load flows (night) on 19.12.2012 at 03:00 a.m. CET in MW



Sum of load flows in MW **ENTSO-E = 43409 MW** **Total = 48328 MW**

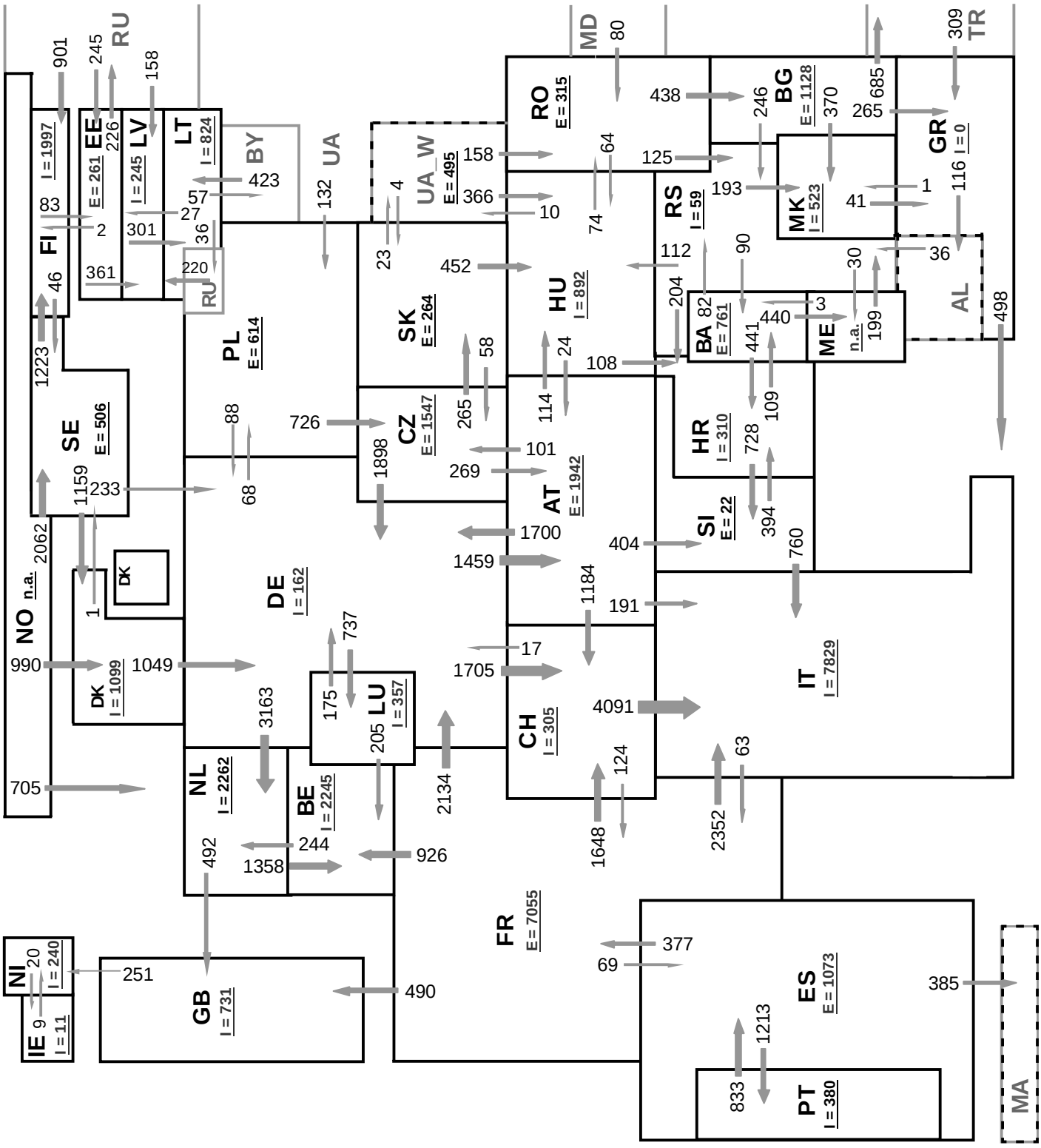
(Calculated sum without data between ME - AL and NO - RU)

Synchronous operation with ENTSO-E region

I = Import balance
E = Export balance

6 Load flows (day) on 19.12.2012 at 11:00 a.m. CET in MW

December 2012

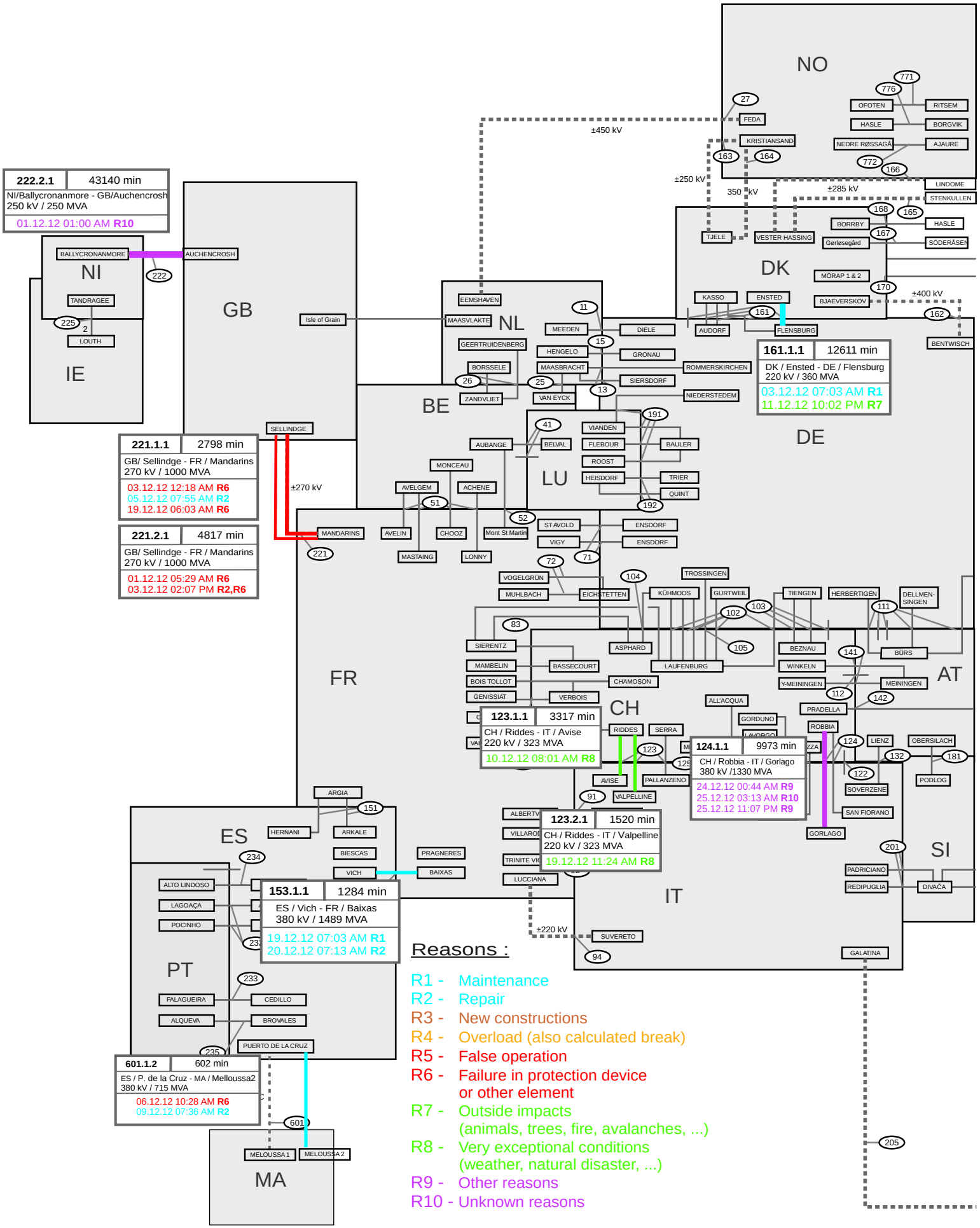


Sum of load flows in MW ENTSO-E = 45593 MW Total = 50524 MW
(Calculated sum without data between ME - AL and NO - RU)

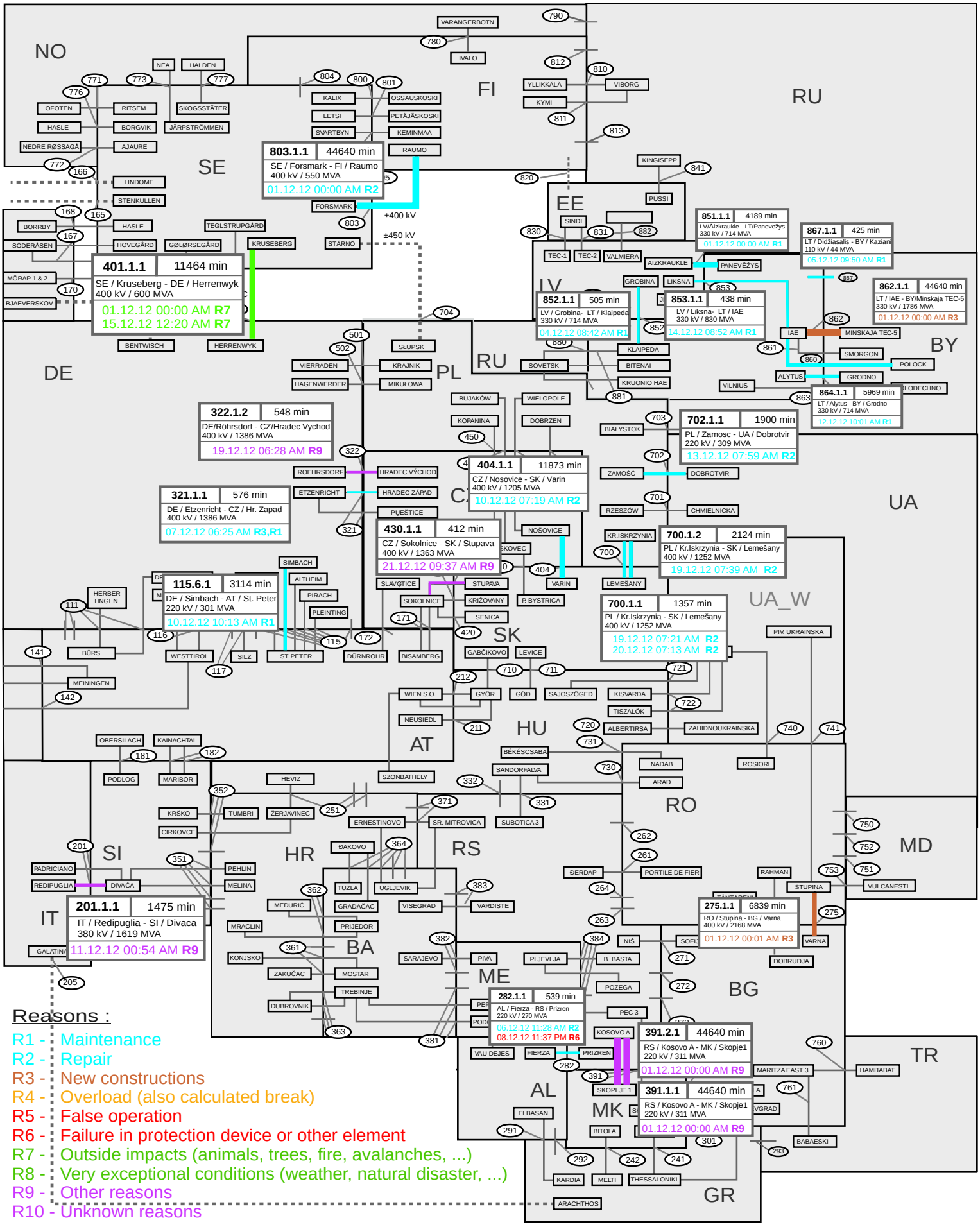
Synchronous operation with ENTSO-E region

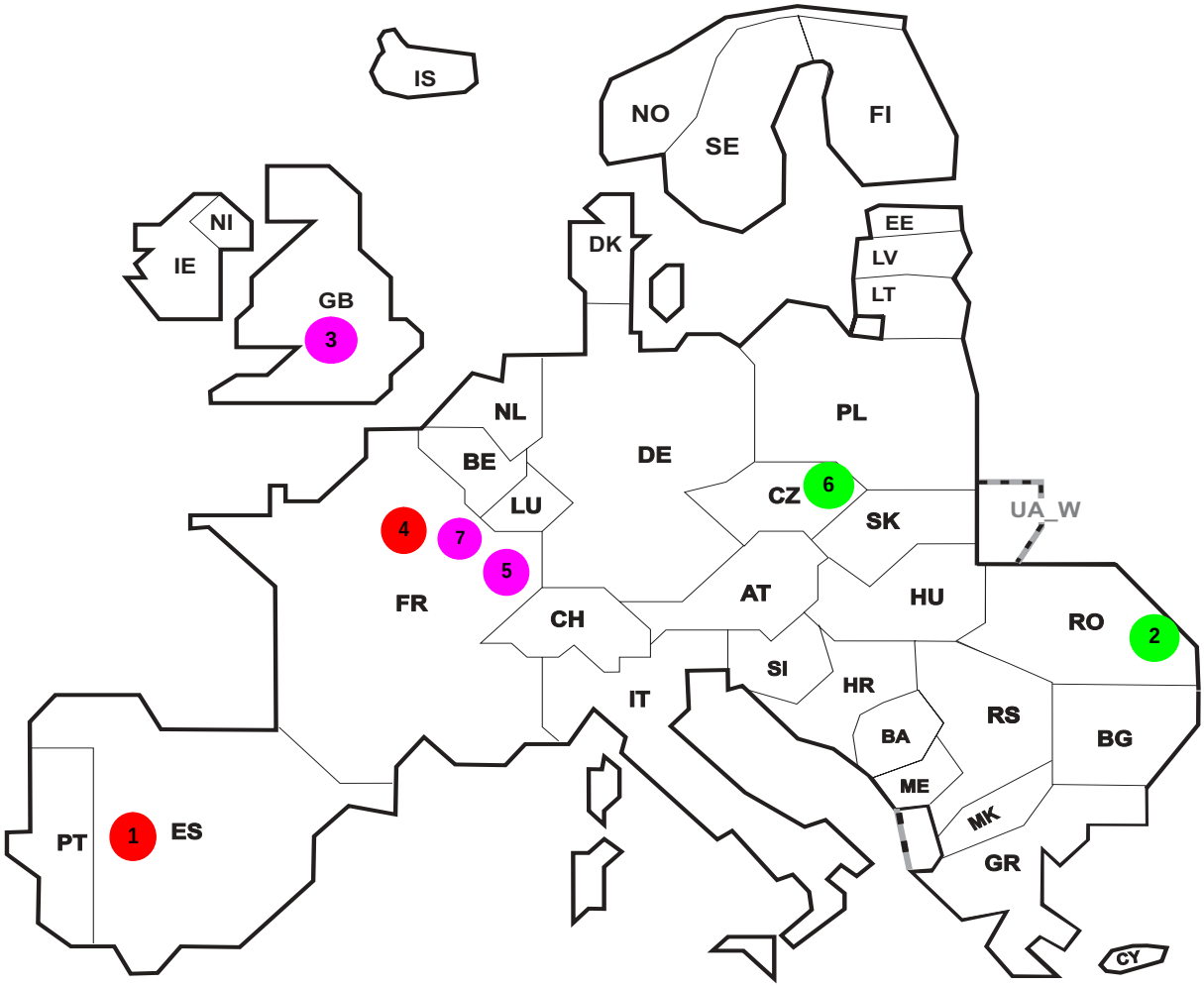
I = Import balance
E = Export balance

Unavailability of international tie lines
(major events with sum over 400 minutes)



Unavailability of international tie lines
(major events with sum over 400 minutes)





Reasons:

R4	Overload (also calculated break)	R8	Very exceptional conditions (weather, natural disaster, ...)
R5	False operation		
R6	Failure in protection device or other element	R9	Other reasons
R7	Outside impacts (animals, trees, fire, avalanches, ...)	R10	Unknown reasons

No	Country	Substation	Reason	Energy not supplied [MWh]	Total loss of power [MW]	Average interruption duration [min]	Equivalent time of interruption[1]
1	ES	Caceres	R5	66	68	230	0,130
2	RO	Constanta Nord	R8	5	1412	632	0,047
3	GB	Willenhall	R9	22	92	19	0,034
4	FR	Gros Caillou	R6	30	43	42	0,032
5	FR	LUTTERBACH	R9	28	27	62	0,030
6	CZ	Kletne	R7	3	80	2	0,023
7	FR	Halles	R9	14	56	15	0,015

Information about incidents in other countries are not shown with energy not supply equal zero or unavailable in the database.

[1] (year [in min] * energy not supplied) / consumption last 12 months

Highest and lowest load on the 19.12.2012 CET of each country

	Highest load MW	variation %[1]	Lowest load MW	variation %[1]	Load representativity %
AT	9378	-0,7	6010	-3,5	100
BA	1881	-5,8	1130	-3,7	100
BE[2]	12101	-1,9	8442	-1,8	100
BG	6504	5,2	4174	5,8	99
CH	9904	-2,5	7158	-0,4	100
CY[3]	649	-6,8	305	-15,3	100
CZ	9159	0,5	6743	-2,0	100
DE[4]	75826	-3,4	49209	-3,1	91
DK	5741	2,0	3177	1,9	100
EE	1512	20,3	1013	28,7	100
ES	36267	-2,0	22578	-2,4	98
FI	13540	20,6	11007	27,5	100
FR	77632	2,9	57560	-2,3	100
GB	56518	2,9	31859	-1,7	92
GR	8033	4,2	4430	1,8	100
HR	2712	-5,6	1538	-2,8	100
HU	5541	0,9	3644	2,5	100
IE	4521	6,7	2330	-1,9	100
IS	2150	2,3	1979	6,2	100
IT	50606	-2,2	27947	10,5	100
LT	1775	5,2	1050	9,6	100
LU	831	-30,1	488	-23,5	100
LV	1380	4,3	790	6,5	100
ME[5]	648	n.a.	422	n.a.	100
MK	1346	-9,4	940	-1,7	100
NI	1657	5,9	722	-4,6	100
NL	17038	-1,6	9523	-1,4	100
NO	20840	0,6	16012	0,5	100
PL[6]	22396	-1,3	14815	-2,6	100
PT	7387	-3,5	4573	-4,0	100
RO	8387	4,7	5819	2,9	100
RS	6295	-5,9	4627	0,7	100
SE	23311	5,8	16626	8,1	100
SI	1842	-1,8	1294	12,5	100
SK	3909	-4,1	2867	-5,2	100
ENTSO-E	**505695**	**n.a.**	**336739**	**n.a.**	

[1] Variation as compared to corresponding month of the previous year

[2] The reported figures are best estimates based on actual measurements and extrapolations.

[3] Only highest and lowest load value available.

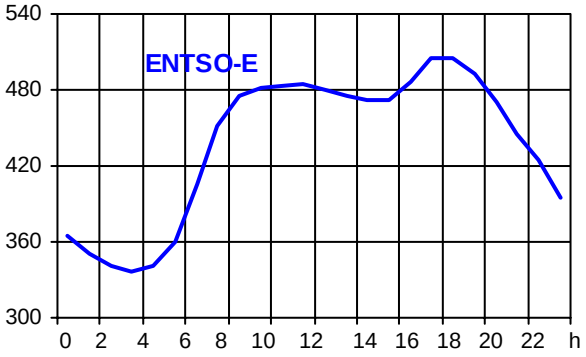
[4] A comparison with previous figures may be limited for statictical reasons related to renewable energies feed-in like direct marketing.

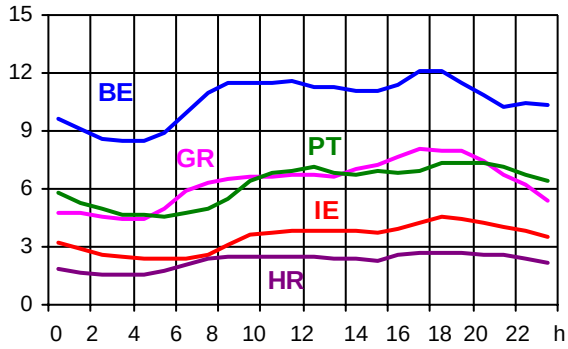
[5] Monthly load values as of 21 December 2011

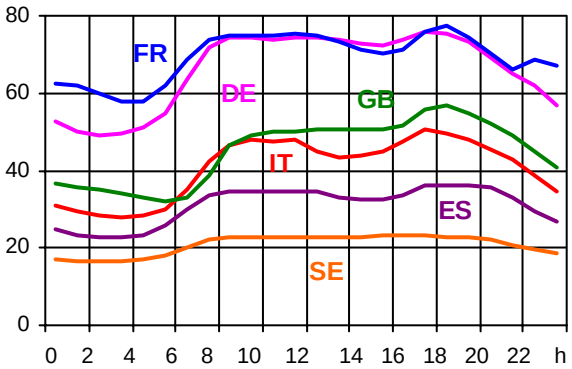
[6] Operational data

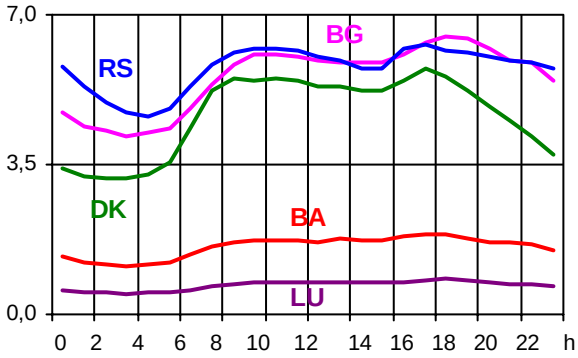
Consumption hourly load curves on 19.12.2012 CET

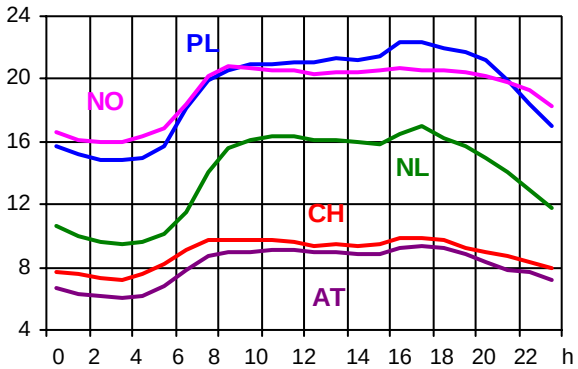
Values in GW

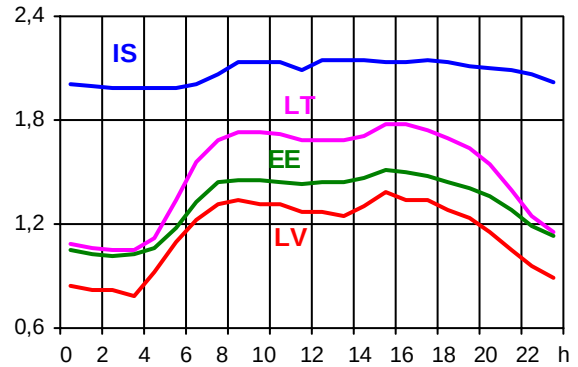


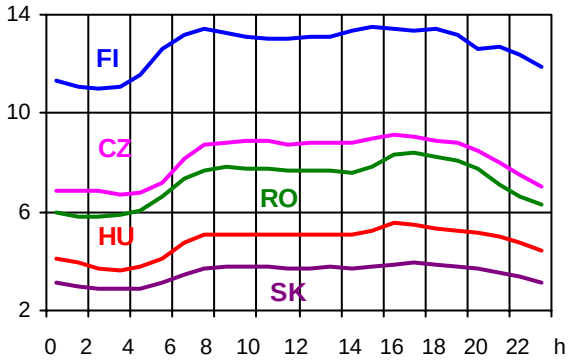


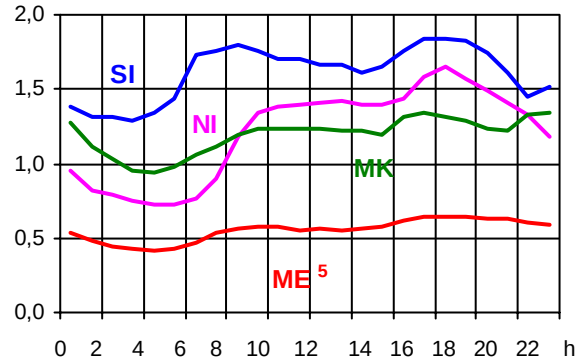


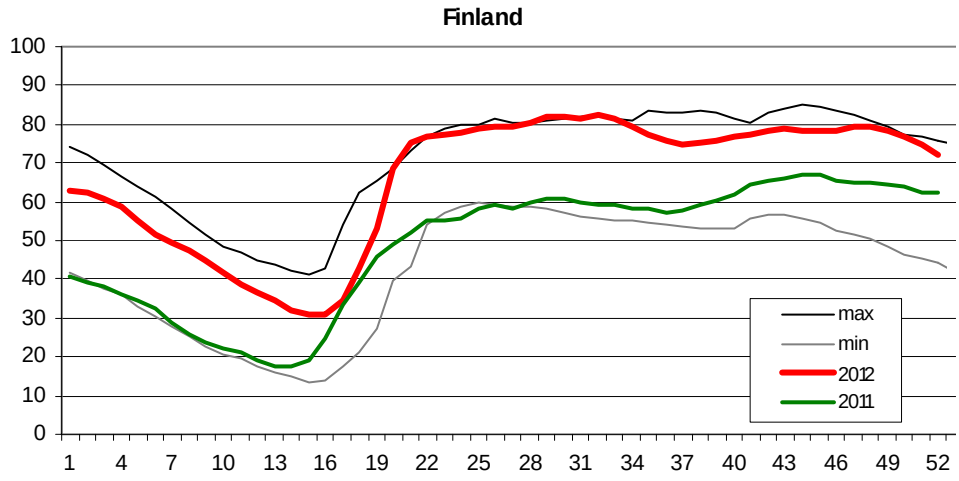


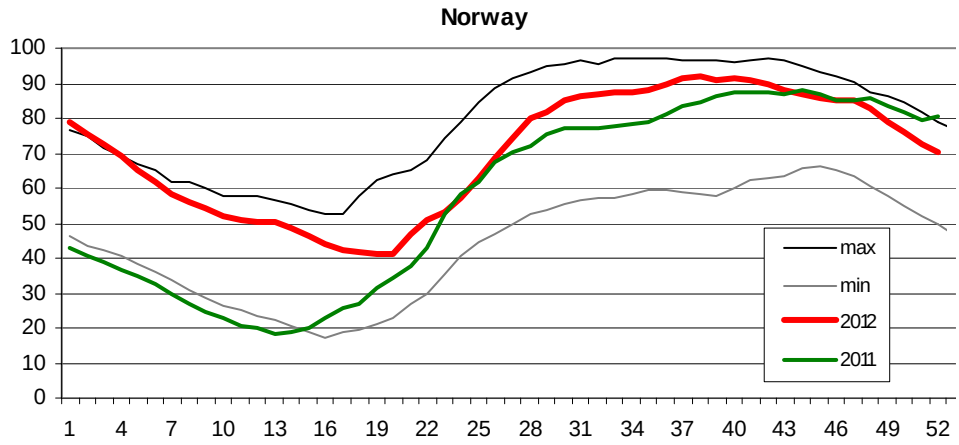


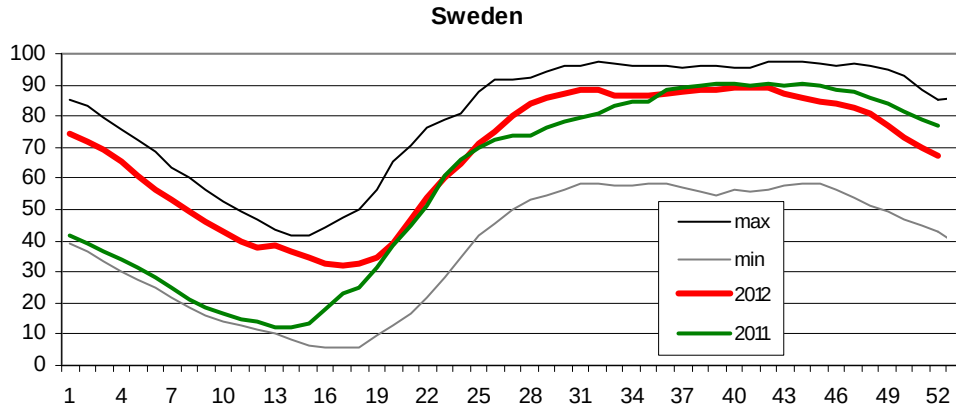












Finland: Reservoir capacity: 5.530 GWh
Minimum and maximum limits are based on values for the years 1990-2002

Norway: Reservoir capacity: 81.729 GWh
The statistics are supposed to cover 97.1 percent of the total reservoir capacity.
The total reservoir capacity is 84 147 GWh
Minimum and maximum limits are based on values for the years 1990-2003

Sweden: Reservoir capacity: 33.758 GWh
Minimum and maximum limits are based on values for the years 1950-2006

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