

2011

The Spanish electricity system Summary



RED ELÉCTRICA DE ESPAÑA

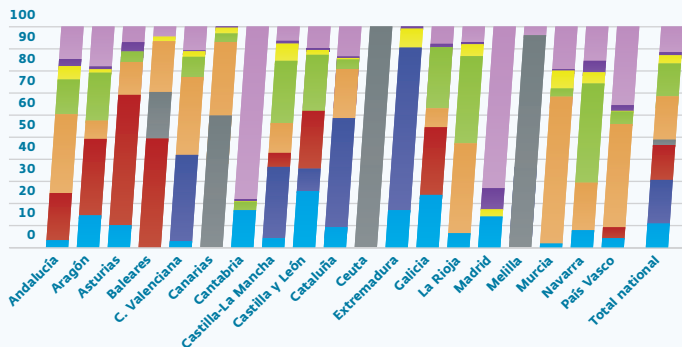
Electrical power balance (GWh)

	Andalucía	Aragón	Asturias	Baleares	C. Valenciana	Canarias	Cantabria	Castilla-La Mancha	Castilla y León	Cataluña
Hydroelectric	1,125	2,017	1,059	-	1,303	0	415	561	8,594	3,053
Nuclear	0	0	0	-	7,901	-	0	8,383	3,742	21,849
Coal (1)	8,708	6,680	7,787	3,031	0	-	0	1,699	9,741	14
Fuel/gas (2)	0	0	0	1,330	0	5,704	0	0	0	0
Combined Cycle	14,032	1,505	1,817	1,390	6,891	3,016	0	3,353	0	9,587
Ordinary regime	23,865	10,202	10,663	5,751	16,094	8,720	415	13,996	22,077	34,503
- Generation consumption	-856	-617	-609	-376	-516	-472	-5	-882	-984	-1,336
Special regime	15,598	8,208	2,167	368	4,485	621	1,581	10,875	13,765	9,046
Net production	38,607	17,792	12,221	5,743	20,063	8,869	1,991	23,988	34,857	42,213
- Pumped storage consumption	-302	-279	-25	-	-1,126	-	-499	-130	-367	-276
+ Energy exchange balance (3)	-953	-7,454	-1,726	0.5	7,702	-	3,133	-11,685	-20,172	7,598
Demand (b.c.) 2011	37,353	10,060	10,470	5,743	26,639	8,869	4,625	12,173	14,318	49,536
Demand (b.c.) 2010	38,541	9,782	10,706	5,840	27,515	8,895	4,768	12,360	14,793	50,169
% 11/10	-3.1	2.8	-2.2	-1.7	-3.2	-0.3	-3.0	-1.5	-3.2	-1.3

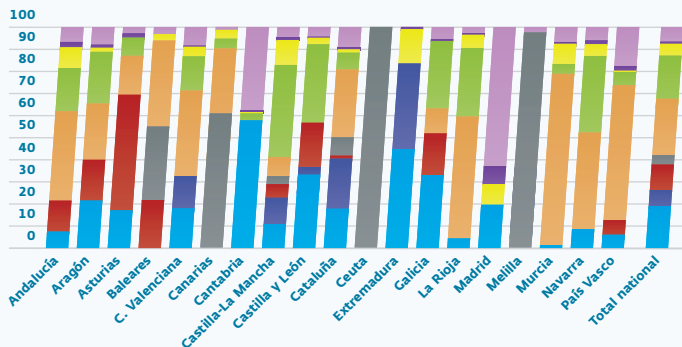
	Ceuta	Extremadura	Galicia	La Rioja	Madrid	Melilla	Murcia	Navarra	País Vasco	Nacional Total
Hydroelectric	-	3,531	5,350	75	139	-	75	90	186	27,571
Nuclear	-	15,857	0	0	0	-	0	0	0	57,731
Coal (1)	-	0	8,503	0	0	-	0	0	357	46,519
Fuel/gas (2)	222	0	0	0	0	222	0	0	0	7,479
Combined Cycle	-	0	2,304	998	0	-	5,535	1,221	3,489	55,140
Ordinary regime	222	19,388	16,157	1,073	139	222	5,610	1,311	4,032	194,440
- Generation consumption	-20	-652	-536	-29	-2	-14	-138	-38	-47	-8,129
Special regime	0	1,955	11,000	1,332	1,611	7	2,621	4,203	3,369	92,811
Net production	203	20,690	26,621	2,376	1,748	215	8,093	5,476	7,354	279,121
- Pumped storage consumption	-	-63	-149	0	0	-	0	0	0	-3,215
+ Energy exchange balance (3)	-	-16,151	-6,274	-650	29,069	-	-316	-565	12,352	-6,090
Demand (b.c.) 2011	203	4,477	20,198	1,725	30,817	215	7,778	4,911	19,706	269,816
Demand (b.c.) 2010	218	4,641	20,739	1,759	30,863	213	8,043	5,130	20,720	275,696
% 11/10	-6.7	-3.5	-2.6	-1.9	-0.1	0.7	-3.3	-4.3	-4.9	-2.1

(1) As of 1 January 2011, GICC (Elcogás) has been included in the National coal figures as, in accordance with Royal Decree 134/2010, this power station is obliged to participate, as a selling unit that uses local coal as fuel, in the process of resolving restrictions regarding the guarantee of supply. (2) Generation by auxiliary units is included in the Canary Island electricity system. (3) Provisional value. Includes values corresponding to intra-national and international energy exchange balances. Positive values indicate an import exchange balance and negative values show an export exchange balance.

Structure of net production by power station type (%)

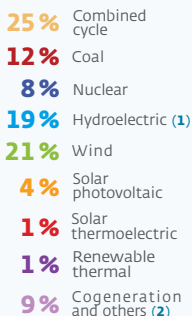
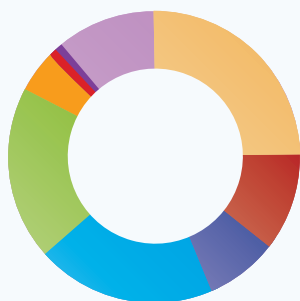


Structure of installed power by power station type (%)



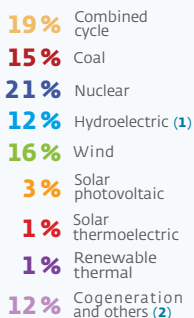
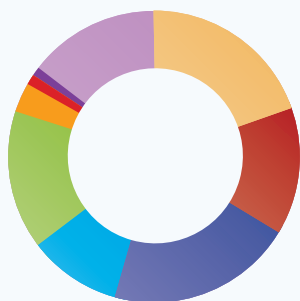
■ Hydroelectric
 ■ Nuclear
 ■ Coal
 ■ Fuel/gas
 ■ Combined cycle
■ Wind
 ■ Solar (1)
 ■ Renewable thermal
 ■ Cogeneration and others
 (1) Includes solar photovoltaic and thermoelectric.

Installed power as at 31.12.2011 Spanish peninsula electricity system



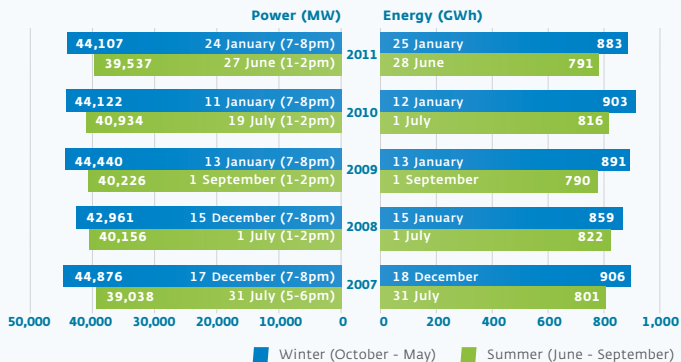
- (1) Includes power obtained from pumped storage (2,747 MW).
(2) Includes non-renewable thermal and fuel/gas.

Annual demand coverage of peninsular electricity system



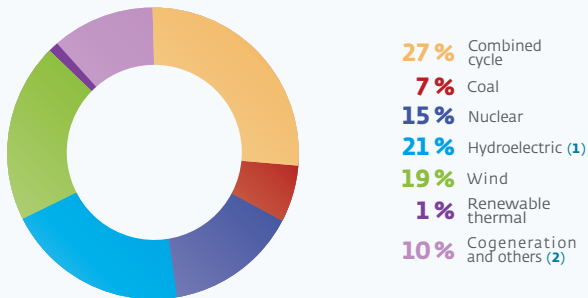
- (1) Does not include pumped storage generation.
(2) Includes non-renewable thermal and fuel/gas.

Peak average hourly demand and daily energy (*)



(*) Peninsular system.

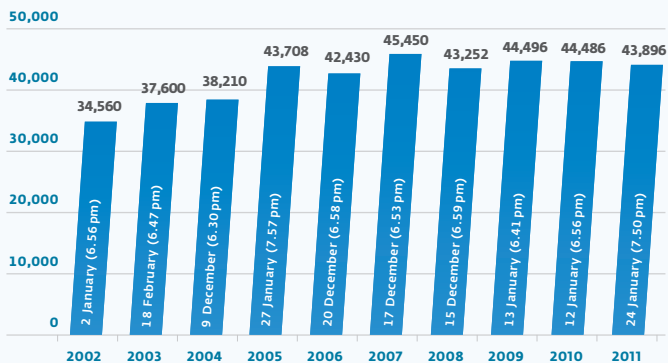
Coverage of peninsular peak power demand 44,107 MW (*)



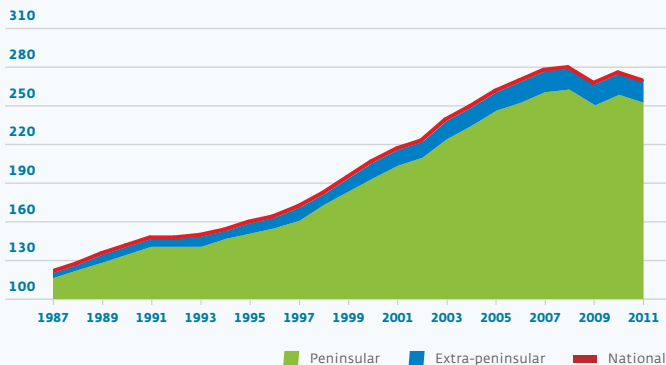
(1) Does not include pumped storage generation. (2) Includes non-renewable thermal and fuel/gas.

(*) 24 January 2011 (7:00pm - 8:00pm).

Peninsular instantaneous peak power demand (MW)



Evolution of electrical energy demand (TWh)



Annual evolution of Spanish peninsula electrical energy demand and GDP

	Demand			
	(GWh)	Δ (%)	Δ by economic activity (%)	GDP
2007	262,436	2.9	4.2	3.6
2008	265,206	1.1	0.7	0.9
2009	252,660	-4.7	-4.7	-3.7
2010	260,530	3.1	2.7	-0.1
2011	254,786	-2.2	-1.3	0.7

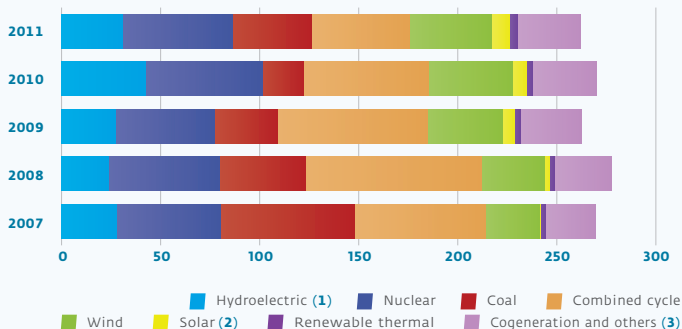
Δ: Variation with respect to previous year.

Annual evolution of the extra-peninsular electrical energy demand

	Balearic Islands		Canary Islands		Ceuta		Melilla	
	GWh	Δ (%)	GWh	Δ (%)	GWh	Δ (%)	GWh	Δ (%)
2007	5,979	2.6	9,215	4.5	203	0.5	193	13.6
2008	6,122	2.4	9,333	1.3	210	3.5	205	6.1
2009	5,993	-2.1	9,107	-2.4	212	0.9	206	0.5
2010	5,840	-2.5	8,895	-2.3	218	2.8	213	3.6
2011	5,743	-1.7	8,869	-0.3	203	-6.7	215	0.7

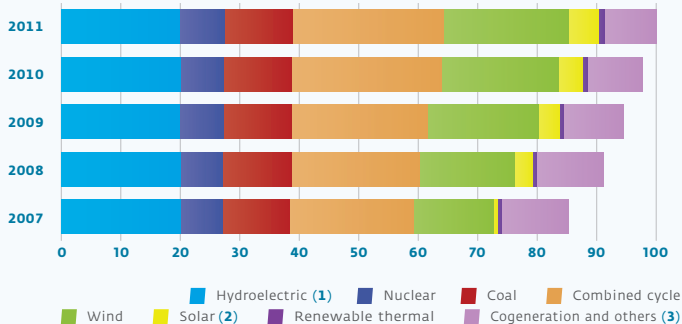
Δ: Variation with respect to previous year.

Annual evolution of the peninsular net production structure (TWh)



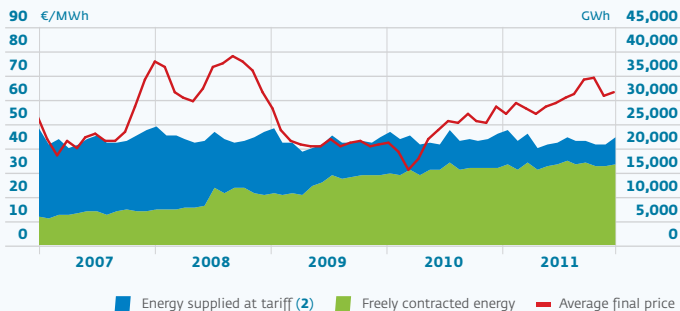
(1) Does not include pumped storage generation. (2) Includes solar photovoltaic and thermoelectric. (3) Includes non-renewable thermal and fuel/gas.

Annual evolution of peninsular installed power (GW)



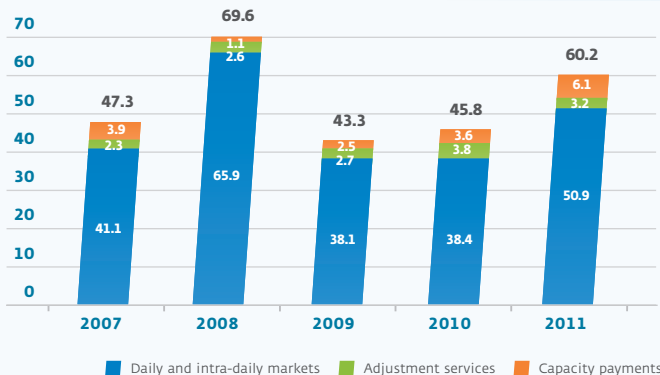
(1) Includes power obtained from pumped storage (2,747 MW). (2) Includes solar photovoltaic and thermoelectric. (3) Includes non-renewable thermal and fuel/gas.

Evolution of monthly energy and prices in the electricity market (1)



(1) National demand data. (2) Royal Decree 485/2009, of 3 April, determines the disappearance of integral tariffs as of 1 July 2009 and the introduction of a last resort tariff.

Evolution of the components of the average final price in the electricity market (€/MWh)



Energy managed in the system adjustment services (GWh)

	2010		2011		% 11/10	
	Increase	Decrease	Increase	Decrease	Increase	Decrease
Supply guarantee restrictions (1)	-	-	12,773	-	-	-
Technical restrictions (DBFP) (2)	12,509	447	9,998	228	-20.1	-48.9
Secondary control band (3)	727	531	716	526	-1.5	-0.9
Secondary control	1,165	1,724	1,213	1,514	4.1	-12.2
Tertiary control	2,726	2,983	2,694	2,591	-1.2	-13.1
Deviation management	2,198	2,675	1,775	2,046	-19.3	-23.5
Restrictions in real time	887	901	657	509	-25.9	-43.5

(1) Increased energy in phase 1 of the supply guarantee restrictions (RD 134/2010 modified by RD 1221/2010) (P.O.3.10). (2) Increased or reduced energy in phase 1 of the technical resolution restrictions of the DBFP (Daily Basic Functioning Program) (P.O.3.2). (3) Average hourly power band (MW).

Average weighted price in the system adjustment services (€/MWh)

	2010		2011		% 11/10	
	Increase	Decrease	Increase	Decrease	Increase	Decrease
Supply guarantee restrictions (1)	-	-	83.1	-	-	-
Technical restrictions (DBFP) (2)	80.5	45.7	94.1	58.4	16.9	27.7
Secondary control band (3)	14.7	15.9	7.8			
Secondary control	40.4	24.7	51.6	33.3	27.8	35.0
Tertiary control	50.4	17.9	58.0	24.5	15.0	36.8
Deviation management	51.0	20.7	54.3	29.8	6.4	44.1
Restrictions in real time	104.7	9.7	130.0	23.0	24.1	136.9

(1) Increased energy in phase 1 of the supply guarantee restrictions (RD 134/2010 modified by RD 1221/2010) (P.O.3.10). (2) Increased or reduced energy in phase 1 of the technical resolution restrictions of the DBFP (Daily Basic Functioning Program) (P.O.3.2). (3) Average hourly price (€/MW).

Map of international physical energy exchanges (GWh)

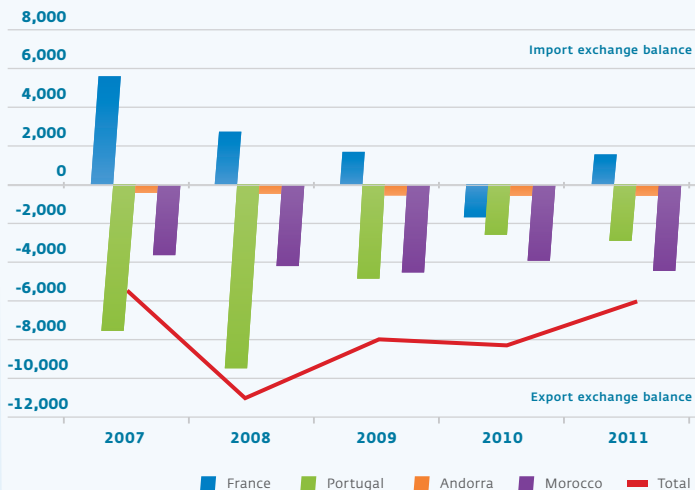


International physical energy exchanges by interconnection (GWh)

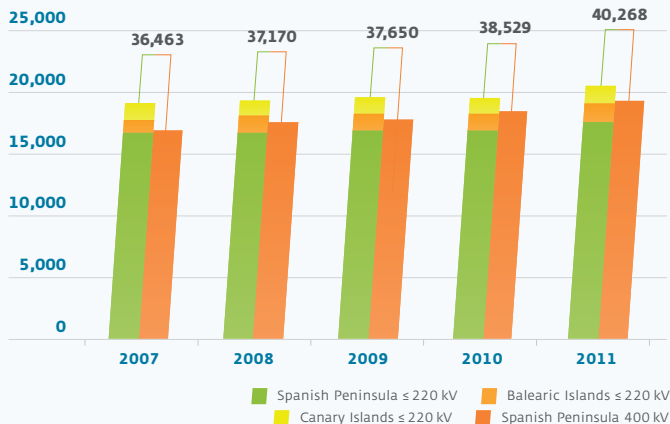
	Input		Output		Balance (1)	
	2010	2011	2010	2011	2010	2011
France	1,983	3,987	3,514	2,463	-1,531	1,524
Portugal	3,189	3,930	5,823	6,744	-2,634	-2,814
Andorra	0	0	264	306	-264	-306
Morocco	34	16	3,937	4,510	-3,903	-4,495
Total	5,206	7,932	13,539	14,023	-8,333	-6,090

(1) Positive values indicate an import exchange balance and negative values indicate an export exchange balance.

Evolution of the international physical energy exchanges balance (GWh)



Transmission grid evolution in Spain (km)

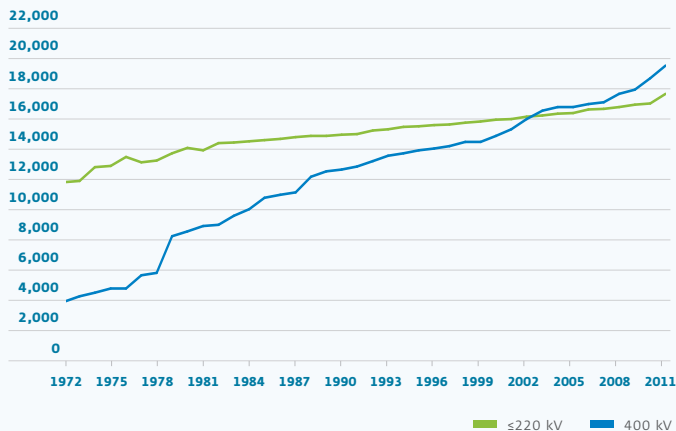


Transmission grid facilities in Spain (km)

	400 kV	≤ 220 kV			Total
	Spanish Peninsula	Spanish Peninsula	Balearic Islands	Canary Islands	
Total lines (km)	19,622	17,806	1,540	1,300	40,268
Overhead lines (km)	19,566	17,261	1,088	1,023	38,939
Submarine cable (km)	29	236	306	15	586
Underground cable (km)	26	309	146	261	743
Transformer capacity (MVA)	70,984	63	2,248	1,625	74,920

Data regarding km of circuit and transformer capacity accumulated as at 31 December 2011.

Graph showing the evolution of the peninsular 400 kV and ≤ 220 kV transmission grid (km)

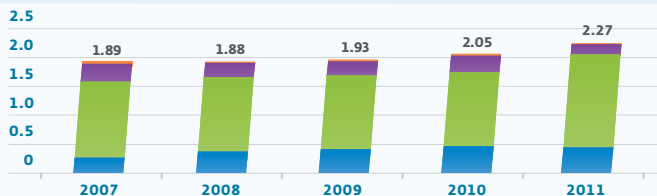


Transmission grid quality

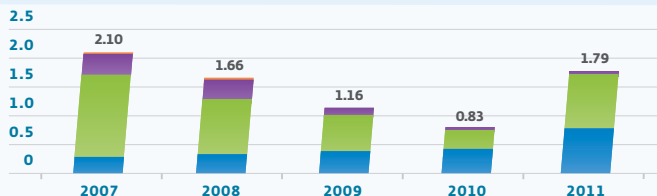
	ENS (MWh)			AIT (minutes)		
	Spanish Peninsula	Balearic Islands	Canary Islands	Spanish Peninsula	Balearic Islands	Canary Islands
2007	757	326	281	1.52	28.73	16.03
2008	574	7	1,043	1.15	0.64	58.94
2009	437	39	1,679	0.91	3.41	96.89
2010	1,570	9	4,090	3.17	0.77	241.68
2011	280	39	17	0.58	3.54	1.02

ENS: Energy not supplied. AIT: Average interruption time.

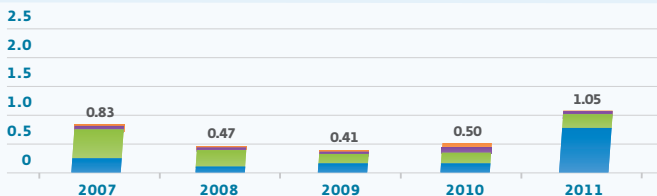
Annual evolution of the non-availability rate of the peninsular transmission grid (%)



Annual evolution of the non-availability rate of the Balearic Islands' transmission grid (%)



Annual evolution of the de non-availability rate of the Canary Islands' transmission grid (%)



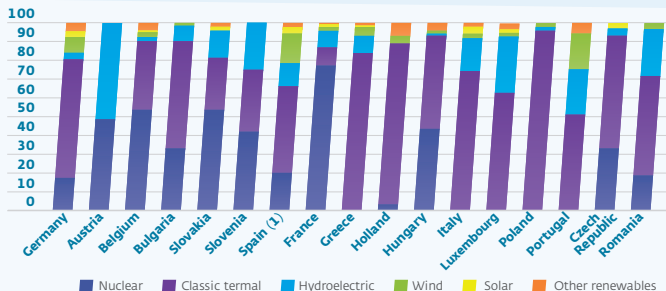
■ Programmable for causes not due to maintenance.
 ■ Programmable for predictive and preventative maintenance.
 ■ Non-programmable due to corrective maintenance.
 ■ Non-programmable due to fortuitous circumstances.
 Note: Classification in accordance with RD 1955/2000.

Electrical energy demand and consumption per capita of the countries of the European Union members of the Continental Europe (ENTSO-E)

	Demand (TWh)		Consumption per capita (kWh/hab.)	
	2011	% 11/10	2011	% 11/10
Germany	544.3	-0.6	6,658	-0.5
Austria	68.6	0.4	8,159	0.0
Belgium	86.5	-4.3	7,897	-5.3
Bulgaria	33.2	5.4	4,428	6.2
Slovakia	26.8	0.5	4,927	0.3
Slovenia	12.6	2.5	6,125	2.4
Spain (1)	254.8	-2.2	5,520	-2.6
France	478.2	-6.8	7,351	-7.3
Greece	52.9	-1.2	4,679	-1.2
Holland	117.8	1.2	7,075	0.7
Hungary	40.2	3.2	4,027	3.5
Italy	332.3	0.6	5,481	0.1
Luxembourg	6.6	-2.0	12,813	-3.8
Poland	145.7	1.5	3,814	1.4
Portugal	50.5	-3.3	4,748	-3.3
Czech Republic	63.0	-1.2	5,979	-1.4
Romania	54.9	2.9	2,565	3.1
Total	2,368.8	-1.7	5,818	-1.9

Source: ENTSO-E. Consumption per capita = Total consumption / n° inhabitants. Population data: Eurostat.
(1) Peninsular demand.

Structure of the net total production of the countries of the European Union members of the Continental Europe (ENTSO-E) (%)



(1) Peninsular system.



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