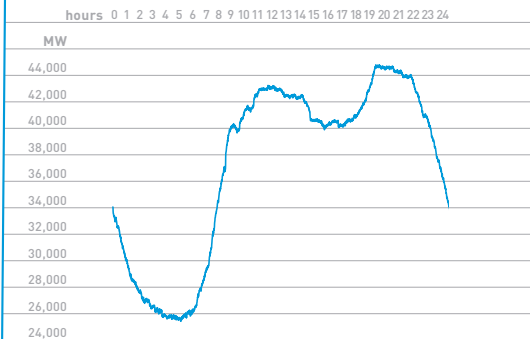


09

The Spanish electricity **system**

Summary



RED ELÉCTRICA DE ESPAÑA

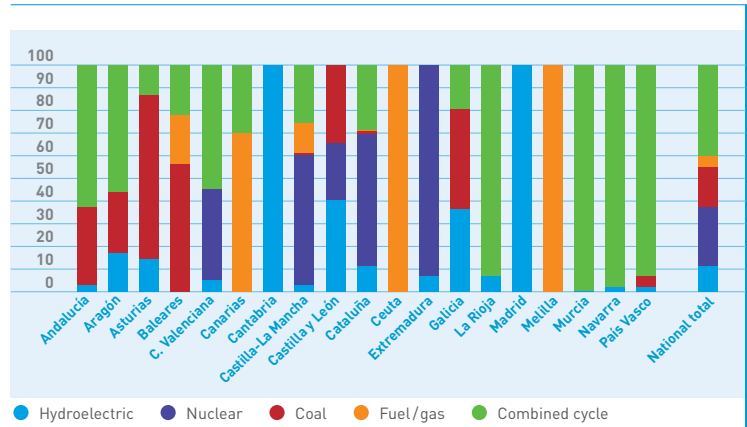
■ Electrical power balance (GWh)

	<i>Andalucía</i>	<i>Aragón</i>	<i>Asturias</i>	<i>Baleares</i>	<i>C. Valenciana</i>	<i>Canarias</i>	<i>Cantabria</i>	<i>Castilla-La Mancha</i>	<i>Castilla y León</i>	<i>Cataluña</i>
Hydroelectric	864	2,001	1,534	0	1,096	0	532	419	5,739	3,815
Nuclear	0	0	0	0	8,049	0	0	7,712	3,575	19,240
Coal	9,606	3,134	7,829	3,450	0	0	0	98	4,845	393
Fuel/gas (1) (2)	0	0	0	1,355	0	6,177	0	1,811	0	235
Combined cycle	17,504	6,470	1,386	1,348	10,918	2,612	0	3,381	0	9,360
Ordinary regime	27,974	11,605	10,748	6,153	20,062	8,790	532	13,421	14,159	33,043
- Generation consumption	-885	-532	-610	-373	-589	-477	-10	-890	-692	-1,145
Special regime	11,300	7,613	1,810	248	4,241	793	1,821	11,167	11,324	7,979
Net production	38,390	18,687	11,948	6,028	23,714	9,106	2,343	23,698	24,791	39,877
- Pump storage consumption	-424	-270	-51	0	-876	0	-643	-132	-662	-299
+ International exchanges (3)	706	-8,012	-382	0	3,325	0	3,003	-11,951	-10,726	5,642
Demand 2009	38,672	10,405	11,516	6,028	26,162	9,106	4,703	11,614	13,402	45,220
Demand 2008	40,578	11,038	12,083	6,122	27,717	9,331	4,928	12,137	14,025	47,776
% 09/08	-4.7	-5.7	-4.7	-1.5	-5.6	-2.4	-4.6	-4.3	-4.4	-5.3

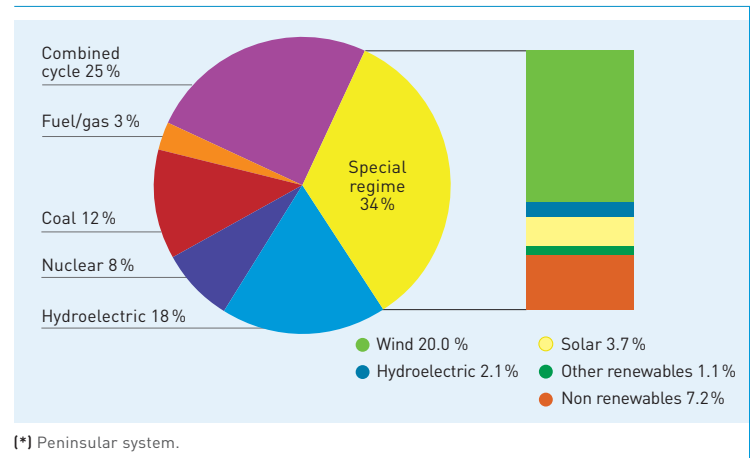
	<i>Ceuta</i>	<i>Extremadura</i>	<i>Galicia</i>	<i>La Rioja</i>	<i>Madrid</i>	<i>Melilla</i>	<i>Murcia</i>	<i>Navarra</i>	<i>País Vasco</i>	<i>Total</i>
Hydroelectric	0	1,123	6,171	141	37	0	62	92	236	23,862
Nuclear	0	14,186	0	0	0	0	0	0	0	52,761
Coal	0	0	7,433	0	0	0	0	0	523	37,311
Fuel/gas (1) (2)	231	0	12	0	0	211	0	0	25	10,056
Combined cycle	0	0	3,171	1,825	0	0	10,579	3,694	9,989	82,239
Ordinary regime	231	15,309	16,787	1,967	37	211	10,641	3,786	10,774	206,229
- Generation consumption	-19	-468	-594	-46	-1	-13	-367	-85	-206	-8,004
Special regime	0	1,007	10,505	1,383	1,677	8	2,404	3,791	2,865	81,938
Net production	212	15,847	26,698	3,304	1,714	206	12,678	7,491	13,433	280,164
- Pump storage consumption	0	-28	-351	0	0	0	0	0	0	-3,736
+ International exchanges (3)	0	-11,014	-6,760	-1,444	28,815	0	-3,887	-2,183	6,765	-8,104
Demand 2009	212	4,804	19,587	1,860	30,528	206	8,791	5,308	20,198	268,324
Demand 2008	210	4,901	20,385	1,952	31,858	205	9,199	5,487	21,164	281,096
% 09/08	0.9	-2.0	-3.9	-4.7	-4.2	0.8	-4.4	-3.3	-4.6	-4.5

(1) Includes GICC (Elcogás). (2) Generation by auxiliary units is included in the Balearic and Canary Island electricity systems. (3) Provisional value. Includes values corresponding to regional and international energy exchange. Positive values indicate import exchanges and negative values are export exchanges.

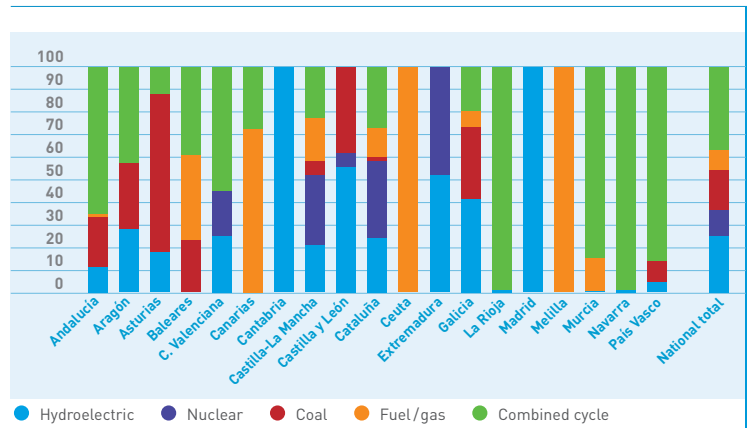
■ Structure of ordinary regime production by power station type (%)



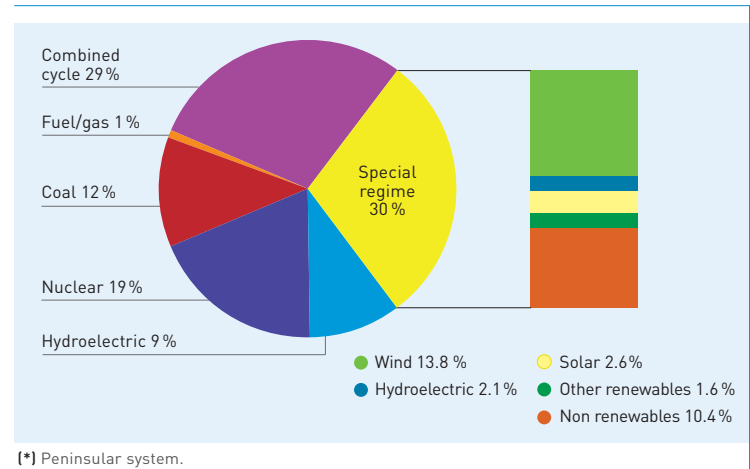
■ Installed capacity as on 31.12.2009 (*)



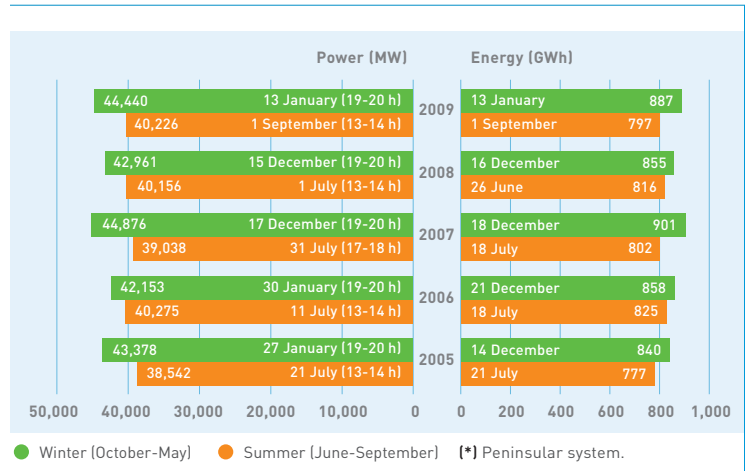
■ Structure of ordinary regime production by power station type (%)



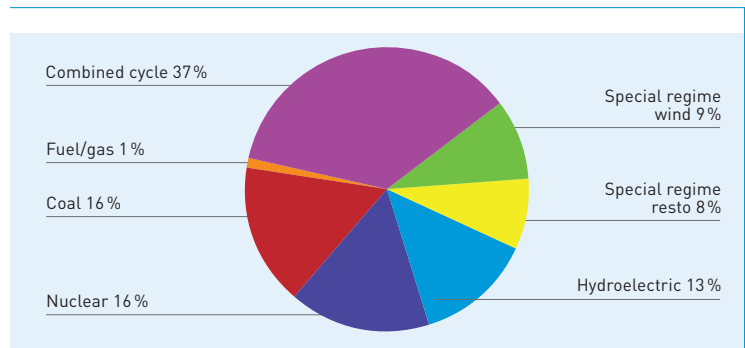
■ Annual demand coverage of electrical energy (*)



■ Peak average hourly demand and daily energy (*)



■ Coverage of annual peak power demand 44,440 MW (*)

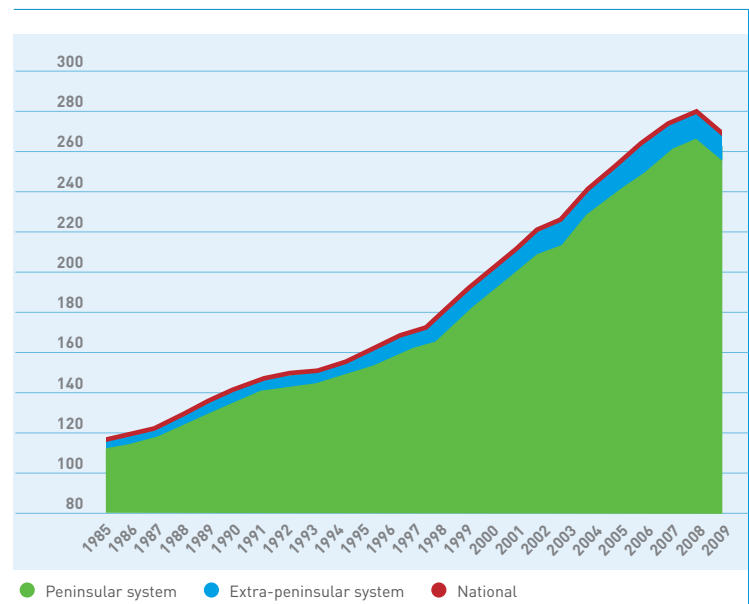


(*) 13 January 2009 (19-20 h). Spanish peninsula system.

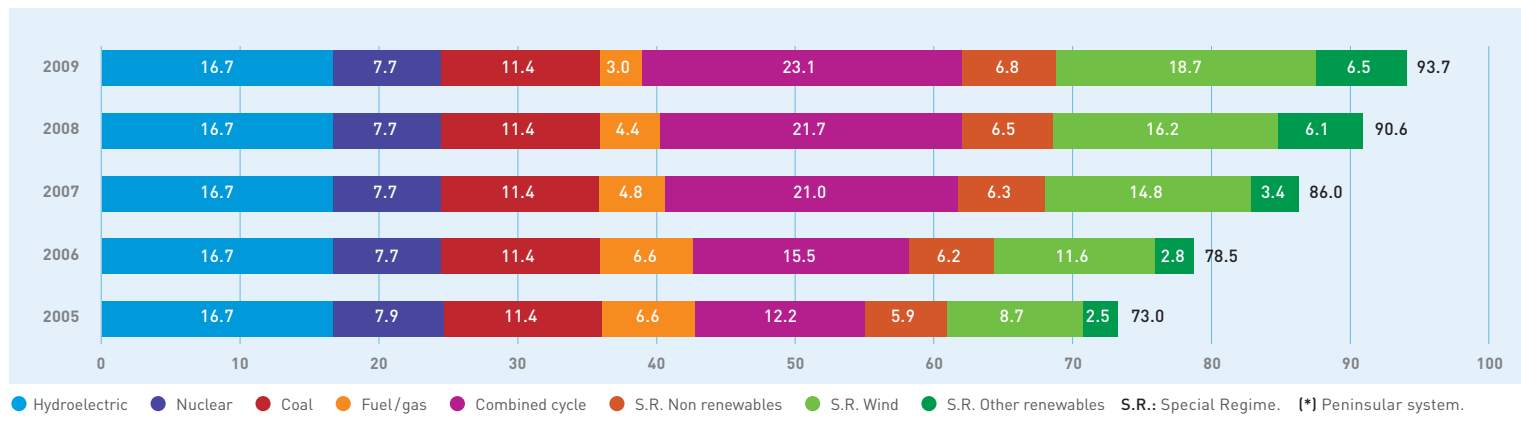
■ Annual evolution of Spanish peninsula demand and GDP

Year	Demand (GWh)	Δ Demand	Δ Demand (by economic activity)	GDP
2005	247,306	4.8	3.5	3.6
2006	255,015	3.1	4.2	3.9
2007	262,577	3.0	4.2	3.6
2008	265,229	1.0	0.8	0.9
2009	252,772	-4.7	-4.5	-3.6

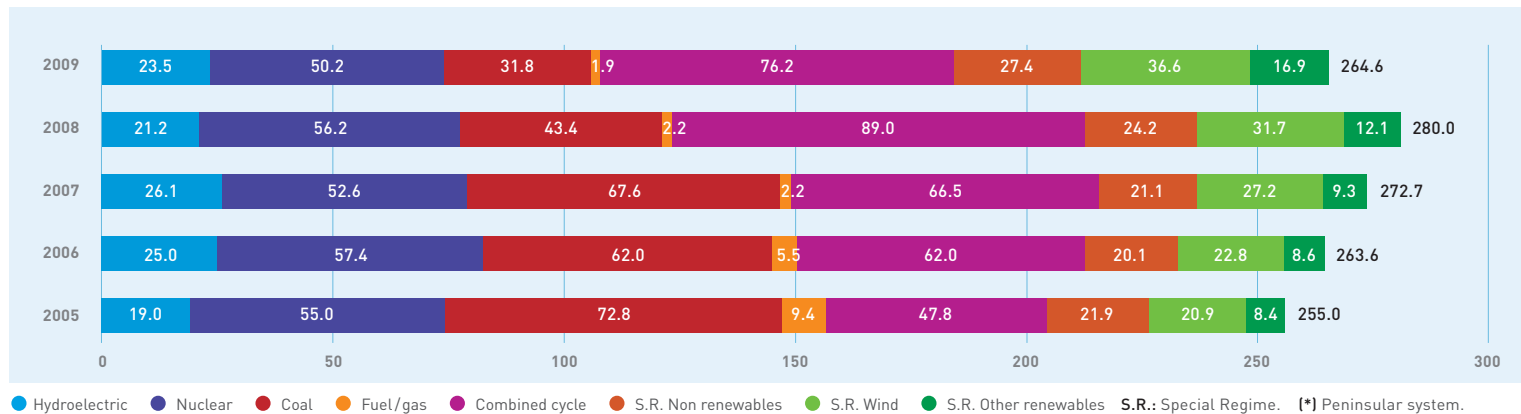
■ Evolution of electrical energy demand (TWh)



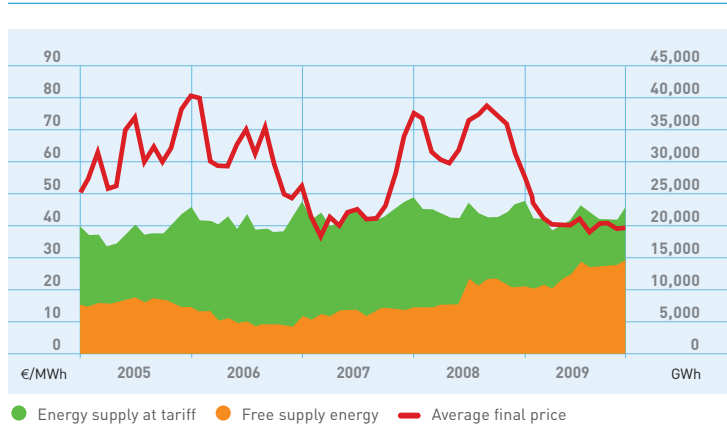
■ Annual evolution of installed power (*) (GW)



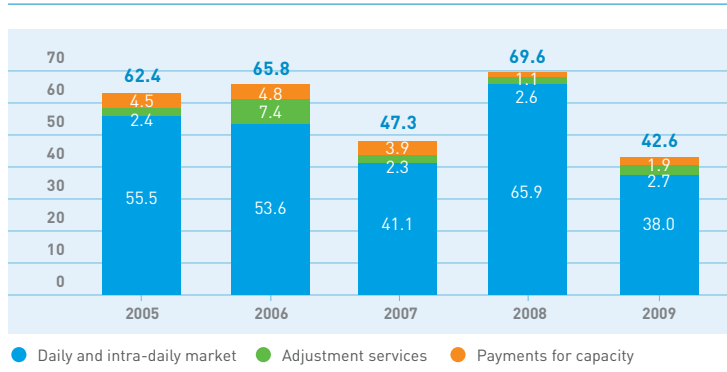
■ Annual evolution of the net production structure (*) (TWh)



■ Evolution of monthly energy and prices in the electricity market



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



■ Managed energy in the system adjustment services (GWh)

	2008		2009		% 09/08	
	Increase	Decrease	Increase	Decrease	Increase	Decrease
Technical restrictions (PBF - Basic Functioning Program) (1)	6,765	858	9,475	707	40.1	-17.5
Secondary regulation band (2)	717	526	718	526	0.1	0.0
Secondary regulation	1,127	1,123	1,072	1,406	-4.9	25.2
Tertiary regulation	2,450	2,008	2,238	3,288	-8.7	63.8
Deviation management	1,190	997	1,253	3,018	5.3	202.6
Restrictions in real time	620	596	821	640	32.5	7.4

(1) Increased or reduced energy in phase 1 of the restrictions (Resolution of 24 May 2006).
 (2) Average hourly power [MW].

■ Adjusted average price in the system adjustment (€/MWh)

	2008		2009		% 09/08	
	Increase	Decrease	Increase	Decrease	Increase	Decrease
Technical restrictions (PBF - Basic Functioning Program) (1)	123.9	72.9	78.2	38.6	-36.8	-47.0
Secondary regulation band (2)	18.5		12.0			-35.2
Secondary regulation	67.6	51.1	39.9	27.1	-41.1	-47.0
Tertiary regulation	75.7	45.5	49.3	22.6	-34.9	-50.3
Deviation management	70.3	50.2	44.8	24.9	-36.3	-50.4
Restrictions in real time	136.7	29.1	116.7	11.7	-14.6	-59.9

(1) Increased or reduced energy in phase 1 of the restrictions (Resolution of 24 May 2006).
 (2) Average hourly power (€/MW).

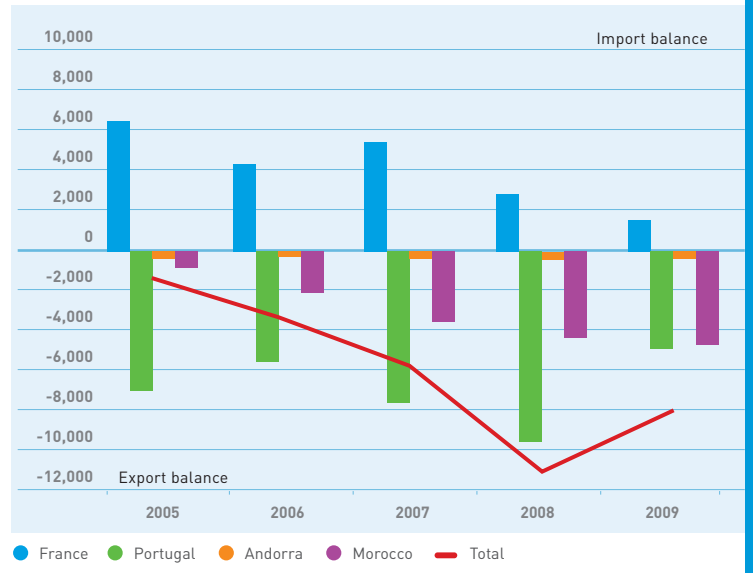
Physical international exchanges of electrical energy (GWh)



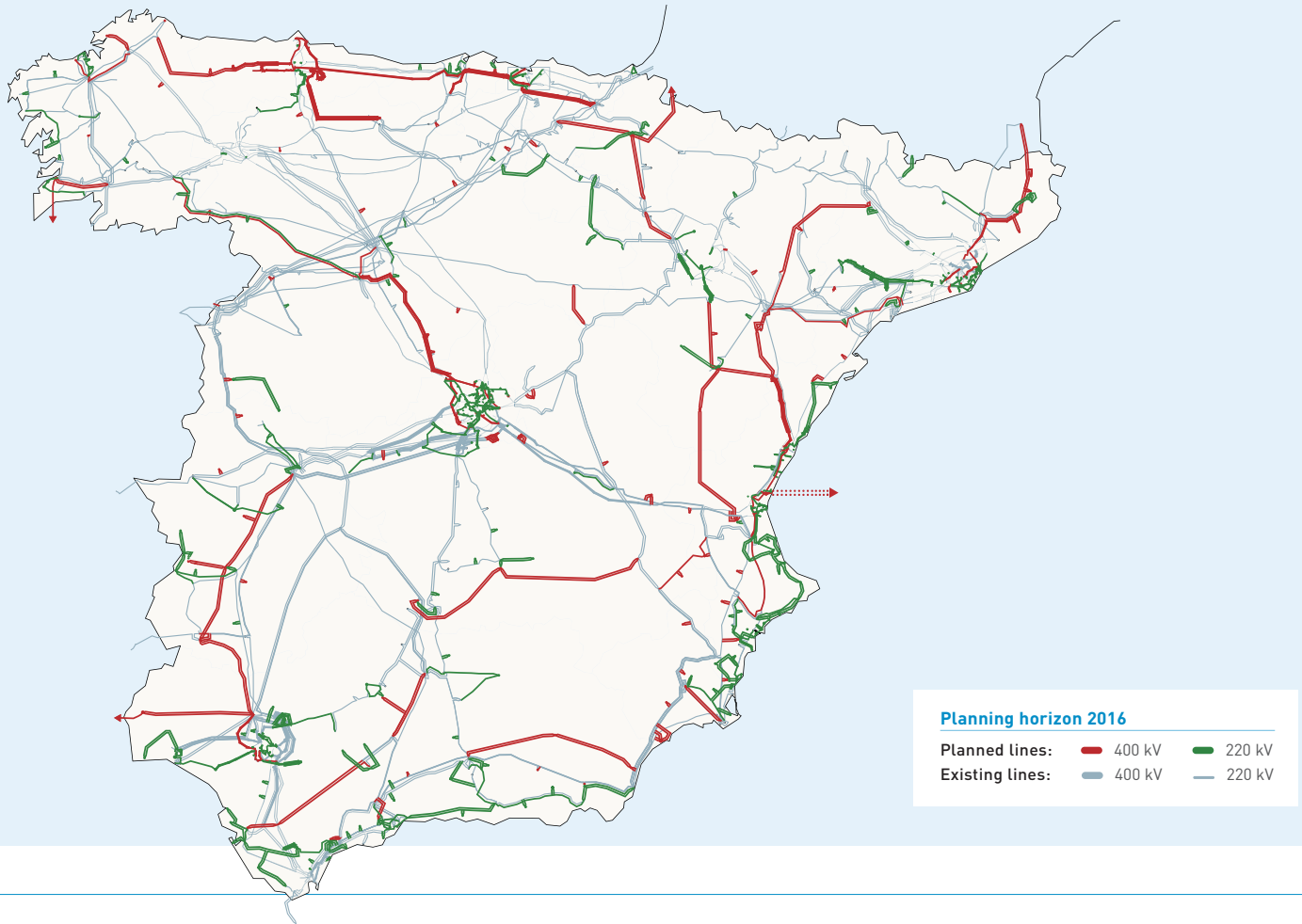
Physical international exchanges by interconnection (GWh)

	Input		Output		Balance	
	2008	2009	2008	2009	2008	2009
France	4,552	3,942	1,662	2,352	2,889	1,590
Portugal	1,314	2,801	10,753	7,608	-9,439	-4,807
Andorra	0	0	278	299	-278	-299
Marocco	15	8	4,227	4,596	-4,212	-4,588
Total	5,880	6,752	16,920	14,856	-11,040	-8,104

Evolution of physical balances of International exchanges (GWh)



Electricity transmission grid planning



■ Evolution of the transmission and transforming system (*)

		2005	2006	2007	2008	2009
Km of circuit a 400 kV	Red Eléctrica	16,808	17,005	17,134	17,686	17,977
	Other companies	38	38	38	38	38
	Total	16,846	17,042	17,172	17,724	18,015
Km of circuit a 220 kV	Red Eléctrica	16,213	16,424	16,461	16,562	16,702
	Other companies	245	261	266	273	276
	Total	16,458	16,685	16,726	16,835	16,978
Transformer capacity (MVA)	Red Eléctrica	54,272	56,072	58,522	62,122	66,322
	Other companies	800	800	800	800	800
	Total	55,072	56,872	59,322	62,922	67,122

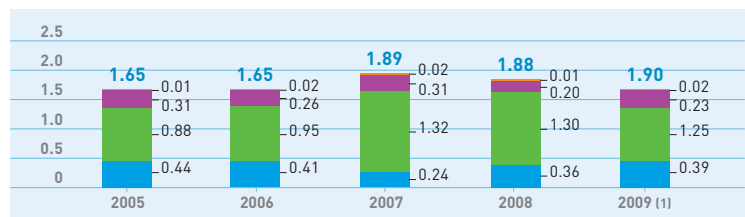
(*) Spanish peninsula system.

■ Quality of the transmission grid (*)

	ENS (MWh)			TIM (minutes)		
	Red Eléctrica	Other companies (1)	Total	Red Eléctrica	Other companies (1)	Total
2005	470	79	549	1.01	0.17	1.18
2006	870	65	936	1.82	0.14	1.95
2007	552	205	757	1.11	0.41	1.52
2008	574	0	574	1.15	0.00	1.15
2009	437	0	437	0.91	0.00	0.91

ENS: Non-supplied energy. TIM: Average interruption time. (*) Peninsular system. (1) Data corresponding to 0.9% of the transmission grid after 2005.

■ Annual evolution of the non-availability rate of the transmission grid (*) [%]



● Programmed for predictive and preventative maintenance. ● Programmed for causes not due to maintenance. ● Non-programmed due to corrective maintenance. ● Non-programmed due to fortuitous circumstances. Note: Classification according to RD 1955/2000. (1) Provisional data pending audit.

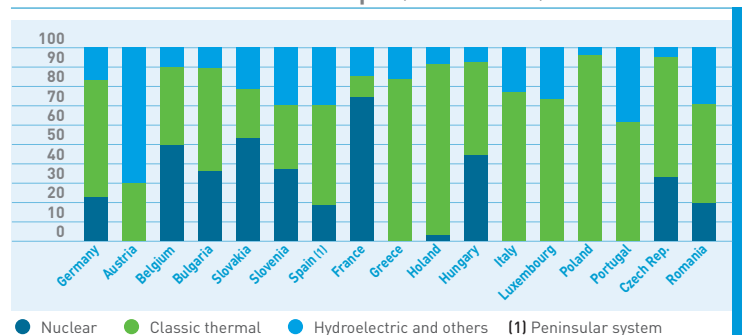
(*) Spanish peninsula system.

■ 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.)	
	2009	% 09/08	2009	% 09/08
Germany	526.9	-5.4	6,425	-5.2
Austria	65.6	-4.0	7,856	-4.4
Belgium	84.6	-6.3	7,866	-7.0
Bulgaria	32.6	-5.4	4,283	-5.0
Slovakia	25.4	-8.0	4,700	-8.1
Slovenia	11.3	-10.6	5,578	-11.6
Spain (1)	252.8	-4.7	5,516	-5.8
France	486.4	-1.6	7,558	-2.2
Greece	53.5	-5.0	4,750	-5.4
Holand	112.9	-6.1	6,849	-6.5
Hungary	38.0	-7.9	3,791	-7.8
Italy	317.6	-6.4	5,289	-7.1
Luxembourg	6.2	-7.2	12,553	-9.0
Poland	136.8	-4.2	3,588	-4.3
Portugal	51.4	-1.6	4,832	-1.7
Czech Rep.	61.6	-5.4	5,885	-6.2
Romania	50.6	-8.3	2,355	-8.1
Total	2,314.2	-4.7	5,709	-5.1

Source: UCTE. Consumption per capita = Total consumption / Total population. Population data: Eurostat. (1) Spanish peninsula demand.

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



● Nuclear ● Classic thermal ● Hydroelectric and others (1) Peninsular system



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