

edp

Iberian Data
2018

LOVE
ENERGY

ENERGY BALANCE

PORTUGAL

SPAIN

ktoe	2016	2017	Δ	2016	2017	Δ
PRIMARY ENERGY CONSUMPTION	21 684	22 492	4%	124 206	130 740	5%
Oil	9 157	9 041	-1%	54 747	57 969	6%
Coal	2 848	3 247	14%	10 798	12 821	19%
Natural Gas	4 340	5 438	25%	25 040	27 274	9%
Nuclear	0	0	0%	15 273	15 119	-1%
Electricity ⁽¹⁾	-437	-231	-47%	659	788	20%
Renewables and Others	5 776	4 997	-13%	17 689	16 769	-5%
DOMESTIC PRODUCTION	5 949	5 192	-13%	34 775	33 642	-3%
Oil	0	0	0%	144	122	-15%
Coal	0	0	0%	736	1 128	53%
Natural Gas	0	0	0%	48	24	-50%
Nuclear	0	0	0%	15 273	15 119	-1%
Renewables and Others	5 949	5 192	-13%	18 574	17 249	-7%
ENERGY DEPENDENCY	73%	77%	6%	72%	74%	3%
FINAL ENERGY CONSUMPTION	16 121	16 503	2%	86 668	89 130	3%
Oil	7 236	7 251	0%	41 774	42 997	3%
Coal	13	11	-14%	1 612	1 830	14%
Natural Gas	1 604	1 729	8%	13 443	13 483	0%
Electricity	3 986	4 011	1%	19 996	20 173	1%
Renewables and Others	2 321	2 301	-1%	5 519	5 754	4%
Non-energy use	960	1 201	25%	4 324	4 893	13%
FINAL ENERGY / PRIMARY ENERGY	70%	68%	-3%	66%	64%	-3%
GDP (x10 ⁹ € ₂₀₁₀)	176	180	3%	1 107	1 140	3%
Primary Energy / GDP (ktoe/x10 ⁹ € ₂₀₁₀)	124	125	1%	112	115	2%
Final Energy / GDP (ktoe/x10 ⁹ € ₂₀₁₀)	92	91	0%	74	74	-1%
% RENEWABLES (DIRECTIVE)⁽²⁾	28.4%	28.1%	-1%	17.4%	17.5%	1%

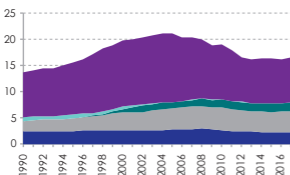
⁽¹⁾ Electric energy balance (Imports - Exports)

⁽²⁾ Directive 2009/28/EC

FINAL ENERGY CONSUMPTION

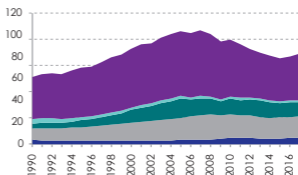
PORTUGAL

Mtoe



SPAIN

Mtoe



Renewables + Other

Electricity

Natural Gas

Coal

Oil

ELECTRICITY INSTALLED CAPACITY

PORTUGAL

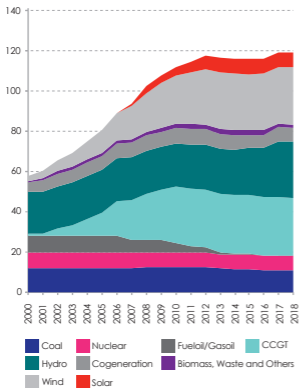
SPAIN

MW	2017	2018	Δ	2017	2018	Δ
INSTALLED CAPACITY	19 806	19 953	0%	98 869	98 592	-1%
Coal	1 756	1 756	0%	9 536	9 562	0%
Nuclear	0	0	0%	7 117	7 117	0%
CCGT	3 830	3 830	0%	24 948	24 562	-2%
Hydro	7 193	7 215	0%	20 359	20 378	0%
Wind	5 099	5 150	1%	22 920	23 041	1%
Solar	493	559	13%	6 745	6 763	0%
Cogeneration	1 149	1 158	1%	5 809	5 736	-1%
Biomass and Waste	273	272	0%	582	575	-1%
Others	13	13	0%	853	858	1%
FIRM CAPACITY ⁽¹⁾	11 065	11 218	1%	54 068	53 708	-1%
ANNUAL PEAK LOAD	8 771	8 794	0%	41 381	40 947	-1%
RESERVE MARGIN	1.26	1.28	1%	1.31	1.31	0%

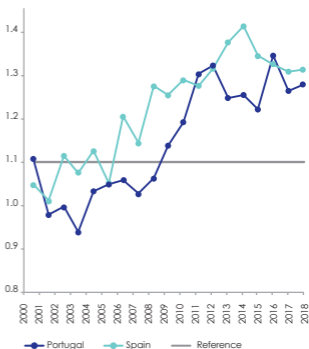
⁽¹⁾ Firm capacity determined based on reference availabilities from Red Eléctrica de España

IBERIAN PENINSULA INSTALLED CAPACITY

GW



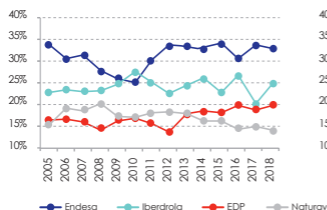
RESERVE MARGIN



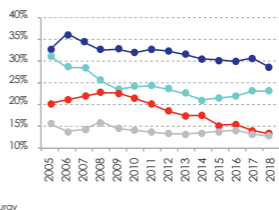
MARKET SHARES IN THE IBERIAN PENINSULA

%	2017	2018	Δ (p.p.)
ELECTRICITY GENERATION - ORDINARY REGIME (TWh)	179	171	
Endesa	34%	33%	-1
Iberdrola	20%	25%	5
EDP	19%	20%	1
Naturgy	15%	14%	-1
Other	12%	8%	-4
ELECTRICITY REGULATED RETAIL (TWh)	33	31	
Endesa	40%	40%	0
Iberdrola	28%	28%	0
EDP	13%	12%	-1
Naturgy	18%	19%	1
Other	1%	1%	0
ELECTRICITY FREE RETAIL (TWh)	270	274	
Endesa	29%	27%	-2
Iberdrola	22%	22%	0
EDP	13%	13%	-1
Naturgy	12%	11%	-1
Other	24%	27%	4
NATURAL GAS RETAIL (TWh)	307	316	
Endesa	17%	17%	0
Iberdrola	4%	6%	2
EDP	4%	4%	0
Naturgy	29%	33%	4
Galp	11%	12%	1
Other	35%	28%	-8

ELECTRICITY GENERATION SHARES (ORDINARY REGIME)



ELECTRICITY TOTAL RETAIL SHARES



NATURAL GAS BALANCE AND NETWORK

Bcm ¹	PORTUGAL			SPAIN		
	2017	2018	Δ	2017	2018	Δ
CONTRACTS	5.8	5.8	0%	51.1	50.1	-2%
NG	2.4	2.4	0%	17.6	17.6	0%
LNG	3.4	3.4	0%	33.5	32.5	-3%
Entry points	6.2	5.9	-5%	33.8	34.2	1%
NG	2.6	1.9	-26%	17.6	19.3	10%
LNG	3.5	3.7	8%	15.8	14.3	-9%
Underground Storage Withdrawal	0.2	0.2	49%	0.4	0.5	21%
EXIT POINTS	6.2	5.8	-6%	33.5	33.6	0%
Conventional Consumption	3.6	3.8	5%	23.6	24.6	4%
Power Sector Consumption	2.4	1.8	-25%	6.5	5.3	-18%
Export Markets	0.0	0.0	-62%	2.7	3.1	13%
Underground storage injection	0.2	0.3	35%	0.7	0.6	-17%

Bcm/year	PORTUGAL			SPAIN		
	2017	2018	Δ	2017	2018	Δ
CAPACITY	19.7	19.7	0	126.2	126.2	0
NG	5.3	5.3	0	26.8	26.8	0
LNG	11.8	11.8	0	91.3	91.3	0
Underground Storage Withdrawal	2.6	2.6	0	8.1	8.1	0
Bcm						
STORAGE CAPACITY	0.6	0.6	0	5.7	5.7	0
Underground Storage	0.3	0.3	0	3.1	3.1	0
Aboveground Storage	0.2	0.2	0	2.6	2.6	0

(1) Bcm = billion cubic meters (equivalent to 11 667 GWh)

NATURAL GAS BALANCE EVOLUTION

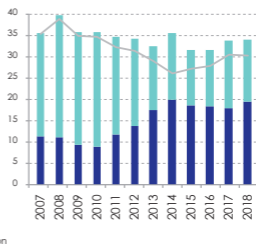
PORTUGAL

Bcm



SPAIN

Bcm



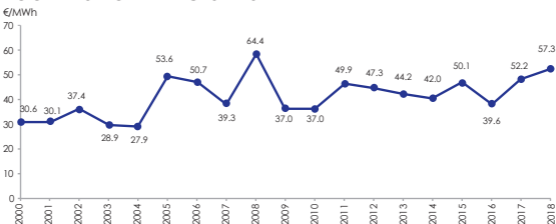
PRICES AND SPREADS

FUEL, CO ₂ AND EXCHANGE RATES		2014	2015	2016	2017	2018	Δ '18-'17
Brent	\$/bbl	99.0	52.5	43.7	54.3	71.0	31%
Coal API#2	\$/ton	75.3	56.8	59.8	84.5	91.9	9%
Gas (ITF)	€/MWh	20.9	19.8	14.0	17.3	23.1	34%
Gas (WACOG) ⁽¹⁾	€/MWh	26.4	22.2	16.8	18.2	20.8	15%
Gas (Mibgas)	€/MWh	-	-	17.0	20.9	24.3	16%
CO ₂ (EUA)	€/ton	6.0	7.7	5.3	5.8	15.9	172%
EUR/USD		1.33	1.11	1.11	1.13	1.18	5%
EUR/GBP		0.81	0.73	0.82	0.88	0.88	1%

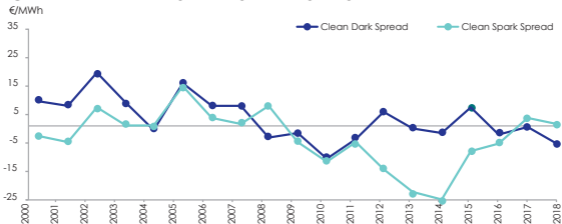
€/MWh	PORTUGAL			SPAIN		
	2017	2018	Δ	2017	2018	Δ
Pool Baseload	52.5	57.4	10%	52.2	57.3	10%
Pool Peak	57.0	61.3	8%	57.1	61.5	8%
Pool Offpeak	50.0	55.3	11%	49.5	54.9	11%
Clean Spark Spread	12.4	8.3	-34%	4.2	1.7	-59%
Clean Dark Spread	11.6	1.6	-86%	1.2	-4.8	-516%

⁽¹⁾ Weighted Average Cost of Gas (Iberian Peninsula)

POOL BASELOAD PRICES IN SPAIN



CLEAN DARK AND SPARK SPREADS IN SPAIN



Assuming average efficiency of 48% for CCGT and 34% for Coal plants in the Iberian Peninsula

ELECTRICITY BALANCE

GWh	PORTUGAL			SPAIN		
	2017	2018	Δ	2017	2018	Δ
ORDINARY REGIME	33 812	33 517	-1%	149 799	144 323	-4%
Nuclear	0	0	0%	55 609	53 198	-4%
Hydro	6 726	12 267	82%	17 743	29 840	68%
Thermal	27 086	21 250	-22%	76 447	61 285	-20%
CCGT	13 478	10 133	-25%	33 855	26 403	-22%
Coal	13 608	11 117	-18%	42 593	34 882	-18%
SPECIAL REGIME	20 732	21 620	4%	98 644	102 551	4%
Hydro	614	1 094	78%	2 867	6 266	119%
Wind	11 973	12 351	3%	47 498	48 902	3%
Solar	853	820	-4%	13 336	11 787	-12%
Thermal	7 292	7 355	1%	34 943	35 596	2%
Cogeneration	5 806	5 896	2%	25 677	26 323	3%
Biomass and Waste	1 486	1 459	-2%	9 266	9 273	0%
IMPORT BALANCE	-2 684	-2 656	-	9 171	11 102	-
Imports	3 072	2 994	-	23 759	24 018	-
Exports	-5 756	-5 650	-	-14 588	-12 916	-
HYDRO PUMPING	-2 223	-1 582	-29%	-3 675	-3 201	-13%
TOTAL CONSUMPTION	49 637	50 899	2.5%	253 939	254 775	0.3%
HYDRO CAPABILITY FACTOR	0.47	1.05	123%	0.53	1.28	142%
Gross Production and Net Imp.	55 014	57 969	5%	257 614	257 976	0%
Renewable Gen. (real)	24 309	30 682	26%	90 710	106 068	17%
% Renewables (real)	44.2%	52.9%	-	35.2%	41.1%	-
Renewable Gen. (Directive) ⁽¹⁾	29 584	28 974	-2%	93 614	-	-
% Renewables (Directive)	53.8%	50.0%	-	36.3%	-	-

Electricity data includes T&D losses

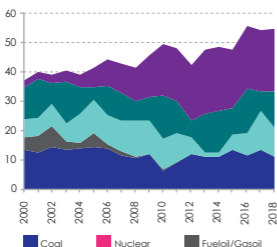
Portugal: Gross Production and Renewable Generation include islands; Spain: values refer to mainland only

⁽¹⁾ Directive 2009/28/EC

ELECTRICITY GENERATION MIX

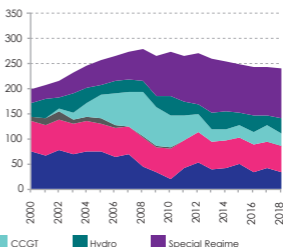
PORTUGAL

TWh



SPAIN

TWh



GHG EMISSIONS

PORTUGAL

SPAIN

kton CO ₂ eq.	2016	2017	2018	2016	2017	2018
TOTAL EMISSIONS	66 092	70 737	n.d.	324 707	n.d.	n.d.
CO ₂ Emissions	50 524	54 848	n.d.	260 289	n.d.	n.d.
Other Gas Emissions	15 568	15 889	n.d.	64 418	n.d.	n.d.
CO₂ ETS EMISSIONS	25 755	30 076	25 252	123 556	136 319	127 374
ETS Free Allowances	11 213	10 961	10 743	59 973	58 696	57 075
ETS Auctions	14 116	17 281	17 036	69 346	84 876	83 685
ETS Balance	-426	-1 834	2 527	5 763	7 253	13 386
CO₂ EMISSIONS (POWER SEC.)	13 226	17 149	13 695	44 173	54 884	43 487
CCGT	2 652	4 849	3 645	9 390	12 535	8 751
Coal	10 574	12 300	10 050	34 783	42 349	34 737
SEF POWER SECTOR (g/kWh)	277	314	248	166	221	176

GHG - Greenhouse Gas

n.a. - Values not available at the date of publication

ETS - Emissions Trading System

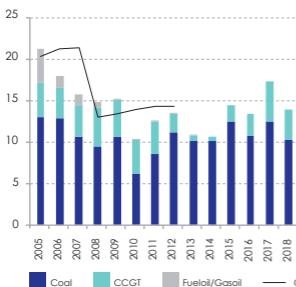
SEF - Specific Emission Factor

Estimated values according to the sector's average emission factors

CO₂ EMISSIONS AND FREE ALLOWANCES IN THE IBERIAN PENINSULA (POWER SECTOR)

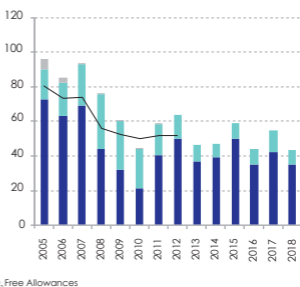
PORTUGAL

Mton CO₂



SPAIN

Mton CO₂



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