



IBERIAN DATA

2019

Energy Balance

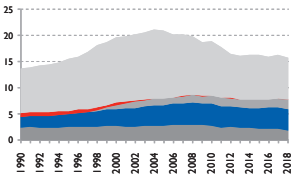
	PORTUGAL			SPAIN		
ktoe	2017	2018	Δ (%)	2017	2018	Δ (%)
PRIMARY ENERGY CONSUMPTION	22 492	22 476	0	130 740	130 069	-1
Oil	9 041	8 761	-3	57 969	58 088	0
Coal	3 247	2 696	-17	12 821	11 126	-13
Natural Gas	5 438	5 044	-7	27 274	27 298	0
Nuclear	0	0	-	15 119	14 619	-3
Electricity ⁽¹⁾	-231	-228	-1	788	955	21
Renewables and Others	4 997	6 203	24	16 769	17 983	7
ENERGY DEPENDENCY	77%	74%	-3	74%	73%	-2
FINAL ENERGY CONSUMPTION	16 503	15 844	-4	89 671	91 886	2
Oil	7 251	7 333	1	43 387	44 315	2
Coal	11	10	-8	1 540	1 538	0
Natural Gas	1 729	1 755	2	13 486	14 271	6
Electricity	4 011	4 126	3	20 559	20 504	0
Renewables and Others	2 301	1 903	-17	5 806	6 254	8
Non-energy use	1 201	718	-40	4 893	5 004	2
FINAL ENERGY / PRIMARY ENERGY	68%	67%	-1	65%	67%	3
GDP (M€)	180	204	13	1 140	1 202	5
Primary Energy / GDP (ktoe/M€)	125	110	-12	115	108	-6
Final Energy / GDP (ktoe/M€)	91	78	-15	79	76	-3
% RENEWABLES (DIRECTIVE) ⁽²⁾	30.6%	30.3%	-1	17.6%	17.5%	-1

⁽¹⁾ ELECTRIC ENERGY BALANCE (IMPORTS - EXPORTS)

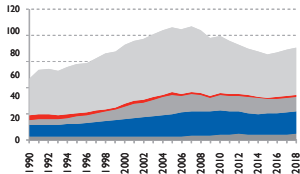
⁽²⁾ DIRECTIVE 2018/2001/EC

Final Energy Consumption

PORTUGAL
Mtoe



SPAIN
Mtoe



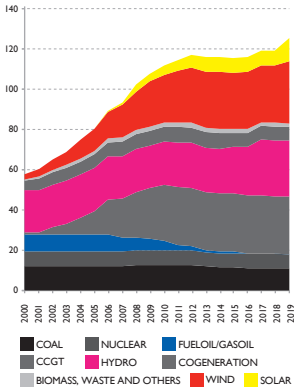
RENEWABLES + OTHERS ELECTRICITY NATURAL GAS COAL OIL

Electricity Installed Capacity

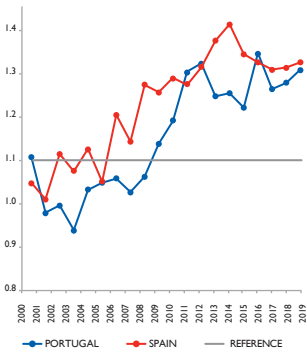
	PORTUGAL			SPAIN		
MW	2018	2019	Δ (%)	2018	2019	Δ (%)
INSTALLED CAPACITY	19 953	20 221	1	98 592	104 652	6
Coal	1 756	1 756	0	9 562	9 215	-4
Nuclear	0	0	0	7 117	7 117	0
CCGT	3 830	3 829	0	24 562	24 562	0
Hydro	7 215	7 216	0	20 378	20 414	0
Wind	5 150	5 208	1	23 041	25 310	10
Solar	559	730	31	6 763	10 758	59
Cogeneration	1 158	1 117	-4	5 736	5 678	-1
Biomass and Waste	272	352	29	575	573	0
Others	13	13	0	858	1 025	19
FIRM CAPACITY ⁽¹⁾	11 218	11 489	2	53 708	53 548	0
ANNUAL PEAK LOAD	8 794	8 792	0	40 947	40 455	-1
RESERVE MARGIN	1.28	1.31	2	1.31	1.32	1

⁽¹⁾ FIRM CAPACITY DETERMINED BASED ON REFERENCE AVAILABILITIES FROM RED ELÉCTRICA DE ESPAÑA

Iberian Peninsula Installed Capacity GW



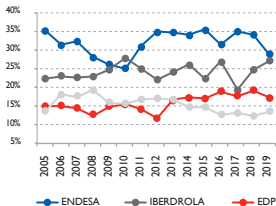
Reserve Margin



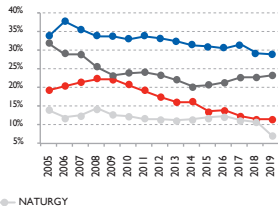
Market Shares in the Iberian Peninsula

%	2018	2019	Δ (p.p.)
ELECTRICITY GENERATION - ORDINARY REGIME (TWh)			
Endesa	33%	28%	-4
Iberdrola	25%	27%	2
EDP	20%	18%	-1
Naturgy	14%	15%	1
Other	8%	11%	3
ELECTRICITY GENERATION - WIND (TWh)			
Endesa	6%	6%	0
Iberdrola	19%	19%	0
EDP	13%	13%	-1
Naturgy	3%	3%	0
Other	58%	58%	0
ELECTRICITY REGULATED RETAIL (TWh)			
Endesa	39%	38%	-2
Iberdrola	28%	29%	1
EDP	12%	12%	0
Naturgy	19%	20%	1
Other	1%	1%	0
ELECTRICITY FREE RETAIL (TWh)			
Endesa	27%	27%	0
Iberdrola	22%	22%	0
EDP	13%	13%	0
Naturgy	11%	7%	-4
Other	27%	30%	3

Electricity Generation Shares (Ordinary Regime)



Electricity Total Retail Shares



Natural Gas Balance and Network

	PORTUGAL			SPAIN		
Bcm ¹	2018	2019	Δ (%)	2018	2019	Δ (%)
CONTRACTS	5.8	5.8	0	50.1	46.5	-7
NG	2.4	2.4	0	17.6	17.6	0
LNG	3.4	3.4	0	32.5	28.9	-11
ENTRY POINTS	5.9	6.2	5	34.2	36.4	7
NG	1.9	0.6	-71	19.3	15.3	-21
LNG	3.7	5.4	45	14.3	20.6	44
Underground Storage Withdrawal	0.2	0.3	5	0.5	0.5	-12
EXIT POINTS	5.8	6.3	7	33.6	36.3	8
Conventional Consumption	3.8	3.8	0	24.6	24.6	0
Power Sector Consumption	1.8	2.0	15	5.3	9.5	80
Export Markets	0.0	0.1	656	3.1	1.0	-66
Underground storage injection	0.3	0.3	15	0.6	1.1	87

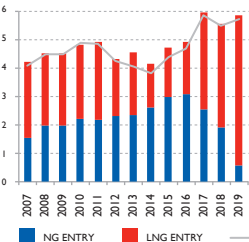
	PORTUGAL			SPAIN		
Bcm/year	2018	2019	Δ (%)	2018	2019	Δ (%)
CAPACITY	19.7	19.7	0	105.6	105.6	0
NG	5.3	5.3	0	26.8	26.8	0
LNG	11.8	11.8	0	70.7	70.7	0
Underground Storage Withdrawal	2.6	2.6	0	8.1	8.1	0
Bcm						
STORAGE CAPACITY	0.6	0.6	0	6.1	6.1	0
Underground Storage	0.3	0.3	0	3.9	3.9	0
Aboveground Storage	0.2	0.2	0	2.2	2.2	0

⁽¹⁾ BCM = BILLION CUBIC METERS (EQUIVALENT TO 11 667 GWh)

Natural Gas Balance Evolution

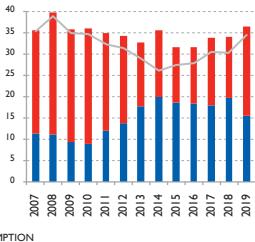
PORTUGAL

Bcm



SPAIN

Bcm



Prices and Spreads

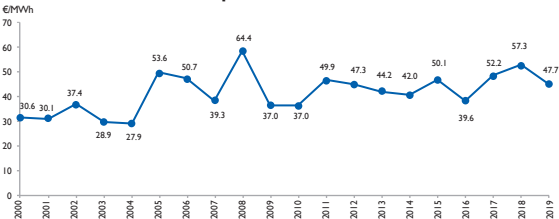
FUEL, CO2 AND EXCHANGE RATES		2015	2016	2017	2018	2019	Δ '19-'18
Brent	\$/bbl	52.5	43.7	54.3	71.0	64.3	-9%
Coal API#2	\$/ton	56.8	59.8	84.5	91.9	61.0	-34%
Gas (TTF)	€/MWh	19.8	14.0	17.3	23.1	13.5	-41%
Gas (WACOG) ⁽¹⁾	€/MWh	22.2	16.8	18.2	20.8	22.0	6%
Gas (Mibgas)	€/MWh	-	17.0	20.9	24.3	15.5	-36%
CO ₂ (EUA)	€/ton	7.7	5.3	5.8	15.9	24.8	56%
EUR/USD		1.11	1.11	1.13	1.18	1.12	-5%
EUR/GBP		0.73	0.82	0.88	0.88	0.88	-1%

	PORTUGAL			SPAIN		
€/MWh	2018	2019	Δ (%)	2018	2019	Δ (%)
Pool Baseload	57.4	47.9	-17	57.3	47.7	-17
Pool Peak	61.3	51.2	-16	61.5	50.8	-17
Pool Offpeak	55.3	46.0	-17	54.9	45.9	-16
Clean Spark Spread ⁽²⁾	0.6	6.0	-	-6.6	3.6	-
Clean Dark Spread	1.6	-6.0	-	-5.1	-13.7	-

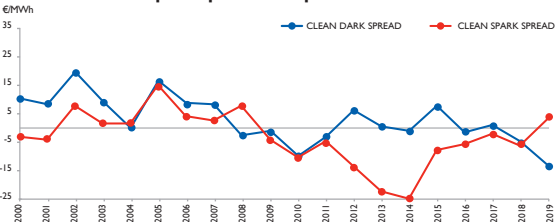
⁽¹⁾WEIGHTED AVERAGE COST OF GAS (IBERIAN PENINSULA)

⁽²⁾ ASSUMES MIBGAS AS REFERENCE

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
ASSUMES WACOG AS GAS REFERENCE UNTIL THE INTRODUCTION OF MIBGAS IN 2016

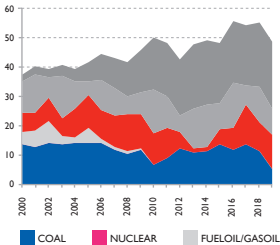
Electricity Balance

	PORTUGAL			SPAIN		
GWh	2018	2019	Δ (%)	2018	2019	Δ (%)
ORDINARY REGIME	33 517	25 691	-23	144 323	134 018	-7
Nuclear	0	0	-	53 198	51 140	-4
Hydro	12 267	8 984	-27	29 840	21 066	-29
Thermal	21 250	16 707	-21	61 285	61 812	1
CCGT	10 133	11 620	15	26 403	51 140	94
Coal	11 117	5 087	-54	34 882	10 672	-69
SPECIAL REGIME	21 620	23 081	7	102 551	108 187	5
Hydro	1 094	1 058	-3	6 266	5 285	-16
Wind	12 351	13 423	9	48 902	53 094	9
Solar	820	1 052	28	11 787	14 007	19
Thermal	7 355	7 548	3	35 596	35 801	1
Cogeneration	5 896	5 863	-1	26 323	26 340	0
Biomass and Waste	1 459	1 685	15	9 273	9 461	2
IMPORT BALANCE	-2 656	3 395		11 102	6 862	
Imports	2 994	7 035		24 018	18 721	
Exports	-5 650	-3 640		-12 916	-11 859	
HYDRO PUMPING	-1 582	-1 825	15	-3 201	-3 025	-5
TOTAL CONSUMPTION	50 899	50 342	-1.1	254 775	246 043	-3.4
HYDRO CAPABILITY FACTOR	1.05	0.81	-23	1.28	0.90	-30
Gross Production and Net Imp.	52 481	52 167	-1	257 976	249 068	-3
Renewable Gen. (real)	27 991	26 202	-6	106 068	102 913	-3
% Renewables (real)	53.3%	50.2%	-6	41.1%	41.3%	0

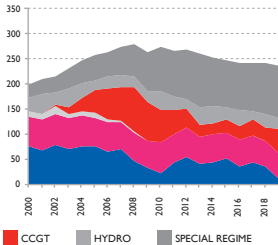
ELECTRICITY DATA INCLUDES T&D LOSSES; EXCLUDES ISLANDS

Electricity Generation Mix

PORTUGAL
TWh



SPAIN
TWh



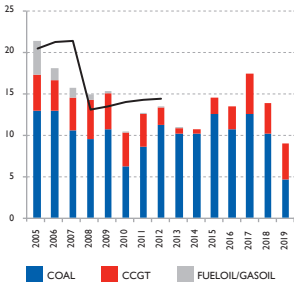
GHG Emissions

	PORTUGAL			SPAIN		
kton CO ₂ eq.	2017	2018	2019	2017	2018	2019
TOTAL EMISSIONS	70 737	67 417	n.d.	340 231	334 255	n.d.
CO ₂ Emissions	54 848	51 619	n.d.	269 654	269 654	n.d.
Other GHG Emissions	15 889	15 798	n.d.	64 601	64 601	n.d.
CO₂ ETS EMISSIONS	30 076	26 289	21 603	136 316	127 370	109 049
ETS Free Allowances	10 936	10 723	10 748	58 754	57 262	57 691
ETS Auctions	17 281	17 036	10 304	84 876	83 685	49 781
ETS Balance	-1 859	1 470	-552	7 314	13 577	-1 577
CO₂ EMISSIONS (POWER SEC.)	17 149	13 695	8 779	54 884	43 487	27 127
CCGT	4 849	3 645	4 180	12 535	8 751	16 215
Coal	12 300	10 050	4 599	42 349	34 737	10 912
SEF POWER SECTOR (g/KWh)	314	248	180	221	176	112

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

