

Portugal - Energy System Overview



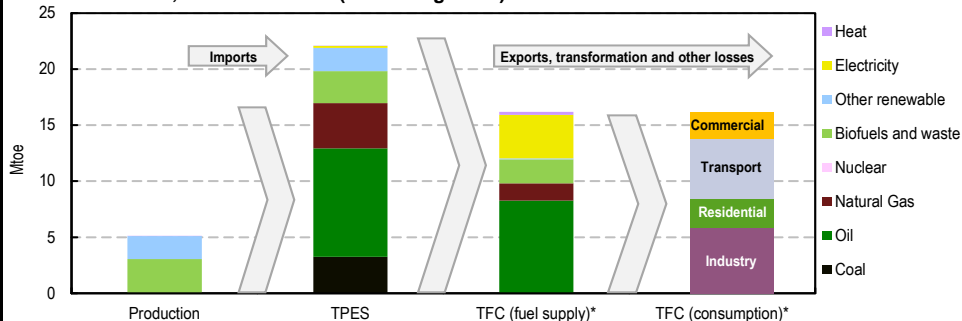
General information

| Portugal | | |
|-------------------|---------------------------|--------------------------------|
| Country size | 91 000 km ² | 19th compared to IEA countries |
| Population (2015) | 10.401 million | 0.9% of IEA population |
| GDP (2015) | 267.772 billion USD (PPP) | |

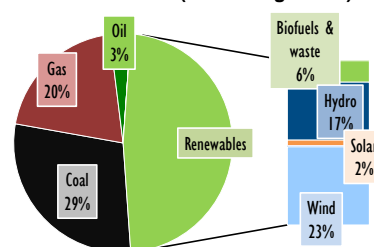
Energy system transformation

SUPPLY AND DEMAND 2015

TPES: 22.1 Mtoe, 22% renewables (IEA average 10%)



Electricity generation: 51 TWh
48% renewables (IEA average :24%)

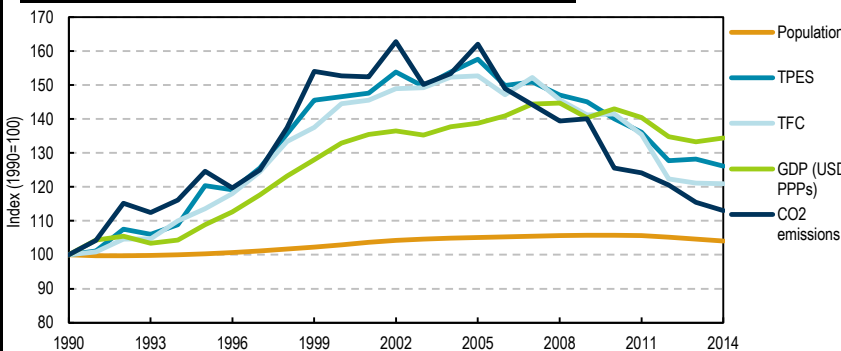


Fuel shares compared to IEA average

| Fuel | TPES | IEA average | Ranking in IEA | Electricity | IEA average | Ranking in IEA |
|------------|------|-------------|----------------|-------------|-------------|----------------|
| Coal | 15% | 18% | 13 | 29% | 30% | 11 |
| Oil | 44% | 36% | 4 | 3% | 2% | 5 |
| Gas | 18% | 26% | 19 | 20% | 25% | 12 |
| Hydro | 3% | 2% | 9 | 17% | 13% | 9 |
| Nuclear | 0% | 10% | 17 | 0% | 19% | 17 |
| Biofuels | 13% | 6% | 6 | 6% | 3% | 13 |
| Wind | 5% | 1% | 2 | 23% | 5% | 3 |
| Geothermal | 1% | 1% | 5 | 0% | 0% | 5 |
| Solar | 1% | 0% | 8 | 2% | 2% | 14 |

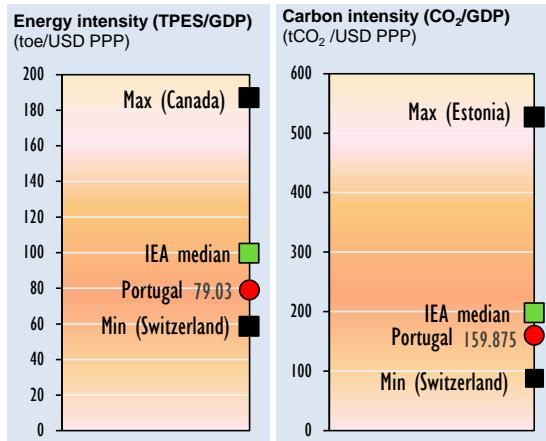
*consumption data are from 2014

KEY ENERGY INDICATOR DEVELOPMENT, 1990-2014



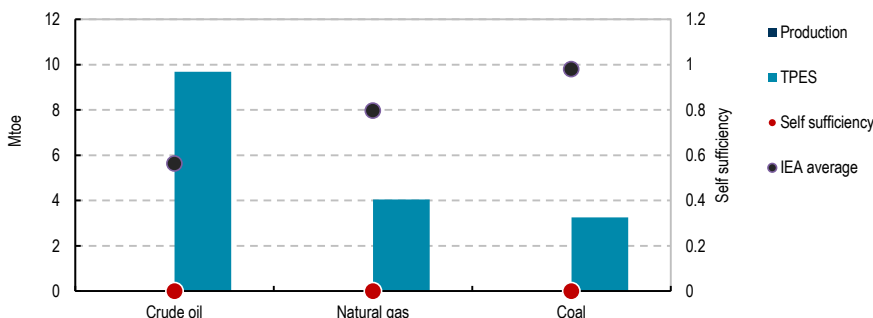
| | Portugal | IEA average |
|---|----------|-------------|
| TPES/Capita (Mtoe/Million) | 2.03 | 4.48 |
| Electricity consumption/Capita (MWh/capita) | 4.66 | 8.72 |
| CO2 emission/Capita (MtCO2/Million) | 4.12 | 10.07 |

INTENSITY



Energy security

PRODUCTION AND SELF SUFFICIENCY 2015



| FUEL | IMPORT COUNTRY |
|--------------|------------------------------|
| Crude Oil | Angola (23.19%) |
| | Saudi Arabia (13.84%) |
| | Spain (59.85%) |
| | United States (13.67%) |
| Oil Products | Algeria (51.15%) |
| | Non-specified/Other (20.82%) |
| Natural gas | Colombia (97.56%) |
| | United States (2.33%) |
| Coal | Imports: Spain (100%) |
| | Exports: Spain (100%) |

(Source: IEA energy balances 2016)