

# Electricity in Europe 2013



Synthetic overview of ENTSO-E electric system consumption, generation and exchanges during 2013

European Network of  
Transmission System Operators  
for Electricity



*Electricity in Europe delivers a synthetic overview of ENTSO-E electric system consumption, generation and exchanges during 2013 and comments on their main evolution in comparison to the previous year.*

*It is based mainly on provisional data as of March 2014 delivered by ENTSO-E members and published on the ENTSO-E portal as “Monthly Statistics”. It is complementary to the Statistical Factsheet and the Yearly Statistics & Adequacy Retrospect which is issued once the data is definitive.*

*Data is corrected for the leap year (2012).*

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## Main facts

### ***ENTSO-E electricity consumption decreases slightly***

Overall electricity consumption on the ENTSO-E perimeter in 2013 was lower than the previous years and decreased by 0.4%, compared to 2012, as a result of economic slowdown and energy efficiency efforts.

In 2013, the peak load of the overall system reached 528.7 GW on 17 January and was inferior to the historical maximum of 557.3 GW achieved in February 2012 due to the exceptional period of cold weather across Europe.

### ***Generation of renewable energy sources continues to rise***

Linked to the high level of hydro generation (an average increase of 4%) in the major ENTSO-E regions, generation from thermal power plants regressed by 6%. Meanwhile, global nuclear generation was almost steady, although, disparities among countries should be noted.

The development of renewable sources (excluding hydro) remained important (12% increase between 2012 and 2013) and brought the overall share of renewables, excluding hydro, to 13% of the electricity generated by ENTSO-E members.

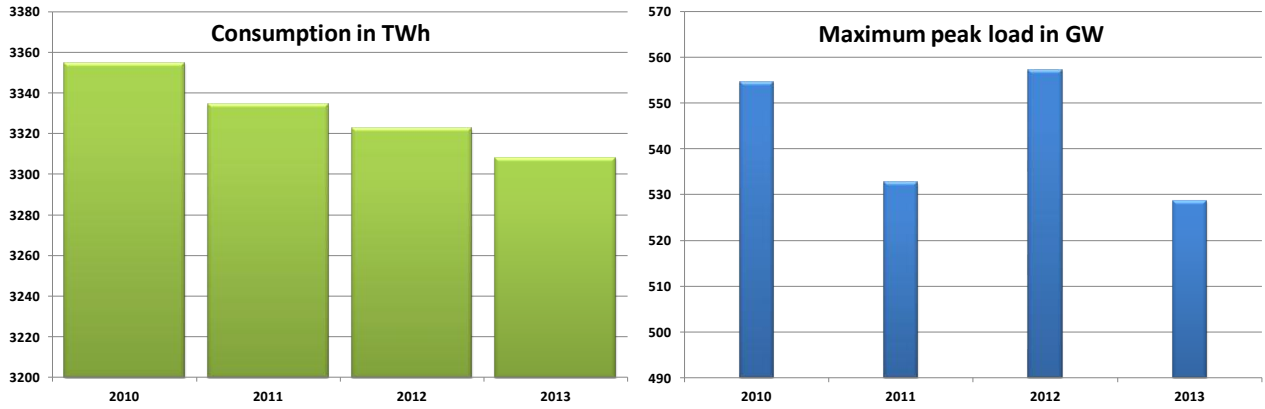
### ***ENTSO-E interconnected network enables a wide range of exchange situations***

The evolution of exchanges was marked by the increase of exports from countries along a North-East to South-West axis, and relates to an energy mix based on hydro, coal and renewables. Countries where gas fired plants are preponderant saw an increase of imports which, in a market context, were favourable to coal.

Around 5% of the total yearly generation from interconnected ENTSO-E members was exported to other ENTSO-E members through the interconnection network. The maximal ratio between imports within ENTSO-E and the total load of ENTSO-E countries was reached on 21 December 2013 at 10%. On this date, some countries were importing up to 55% of their consumption while others were exporting up to 47% of their generation.

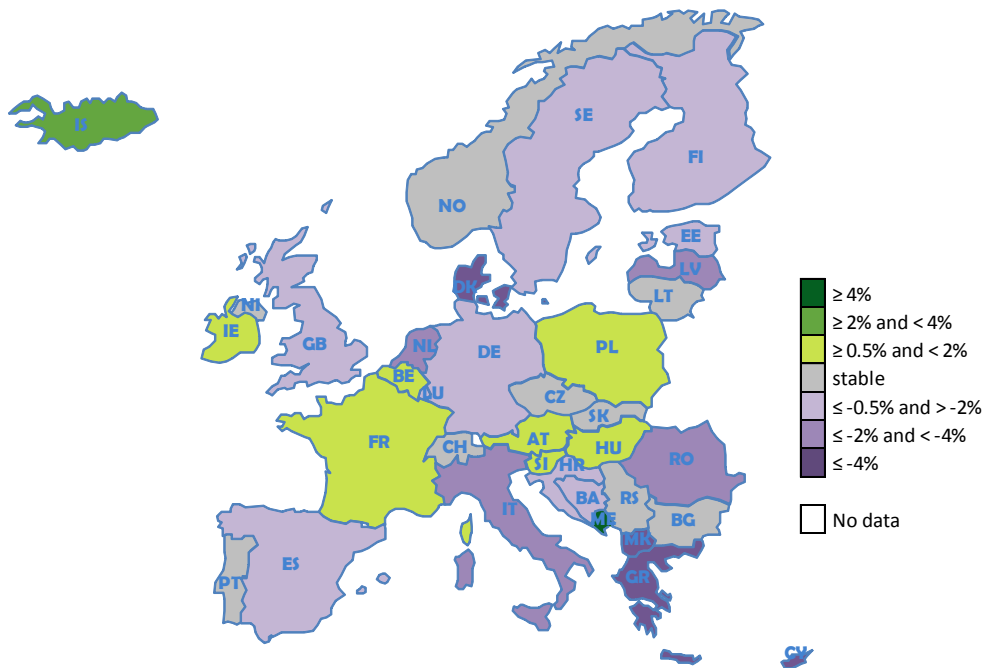
# 1. Consumption

## a. Evolution of overall ENTSO-E consumption



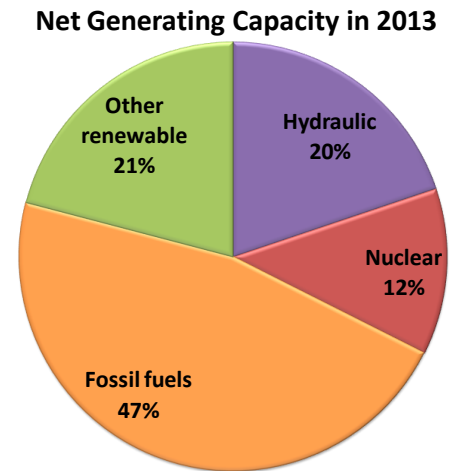
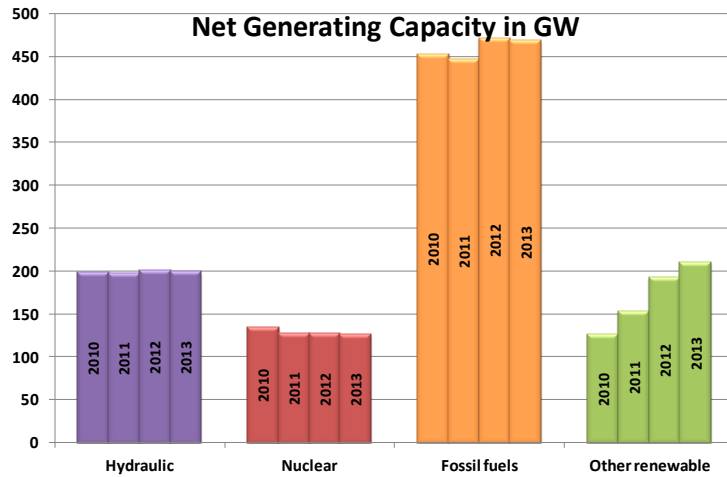
## b. Evolution of consumption per country

Evolution of electricity consumption between 2012 and 2013



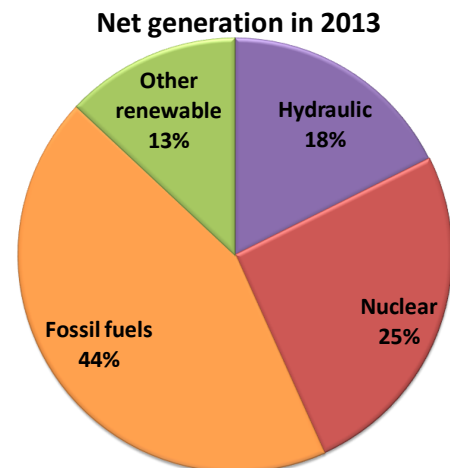
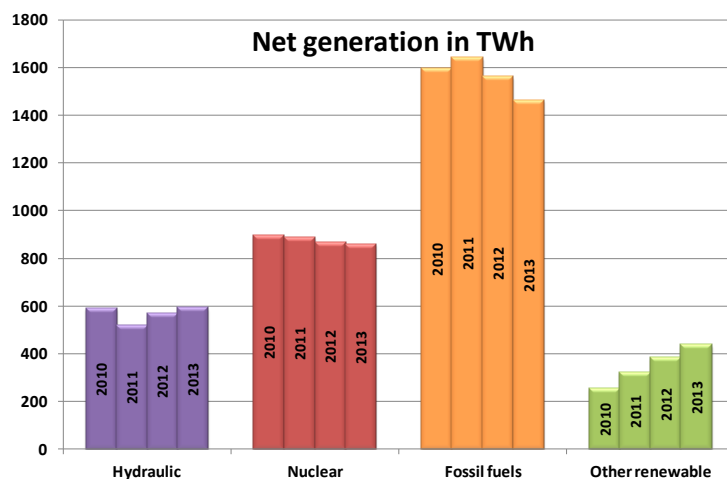
## 2. Generation

### a. Evolution of overall ENTSO-E Net Generating Capacity



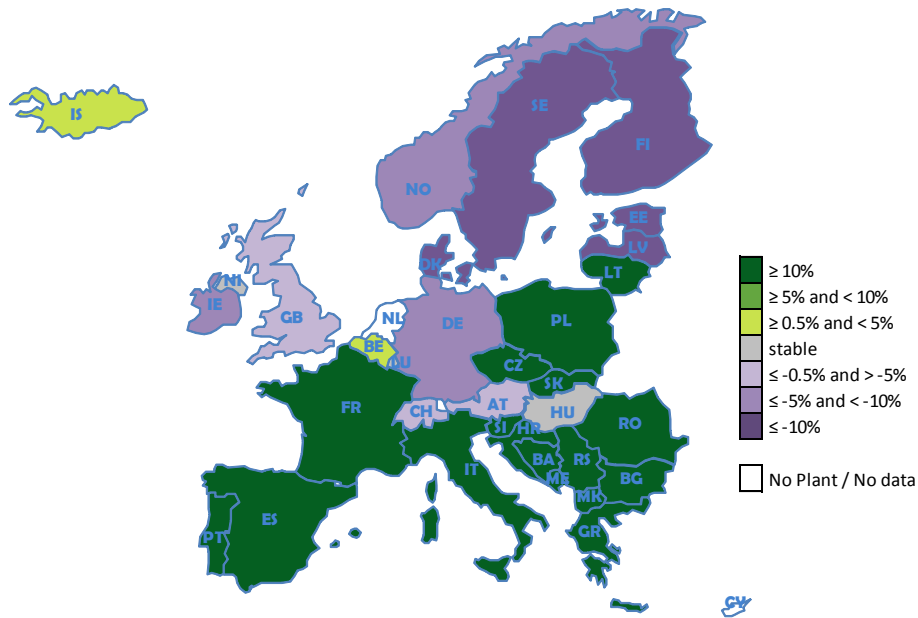
Net Generating Capacity (NGC) as of 31 December 2013 except for Austria, Bulgaria, Switzerland, Ireland, Luxembourg, FYROM, Norway and Sweden as of 31 December 2012

### b. Evolution of overall ENTSO-E net generation



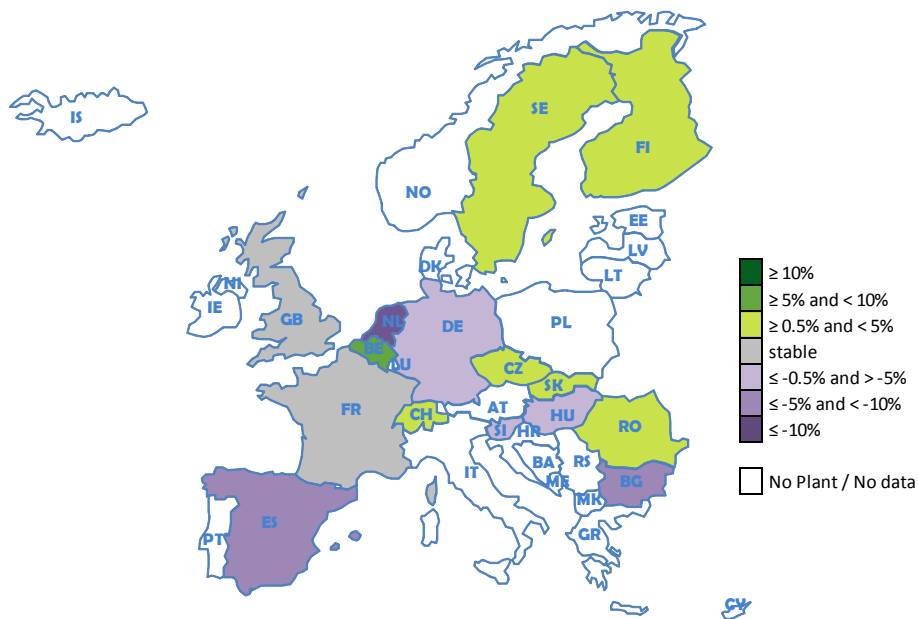
c. Evolution of net generation per country

Evolution of hydraulic net generation between 2012 and 2013

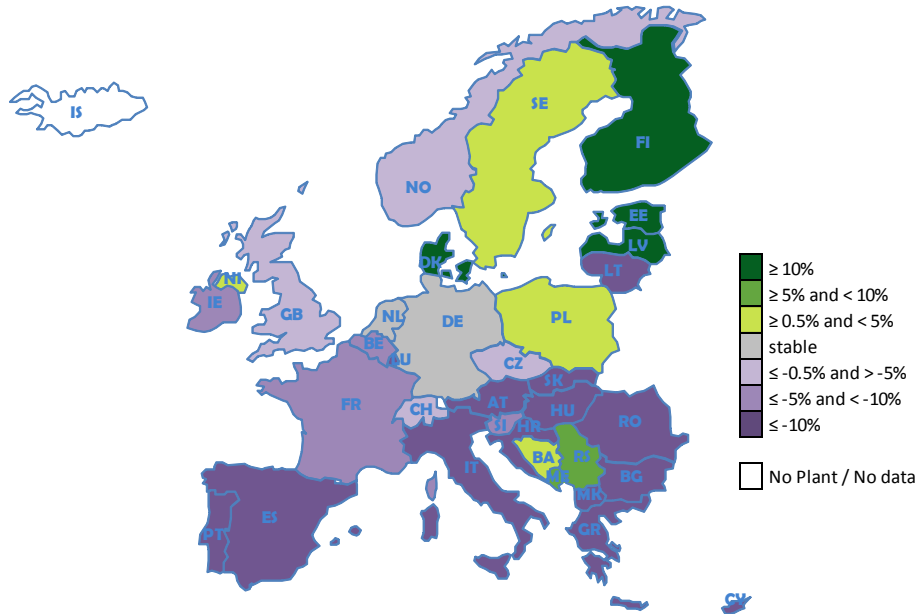


Hydro is gathered from storage hydro, run of river, pure pumped storage and mixed pumped storage

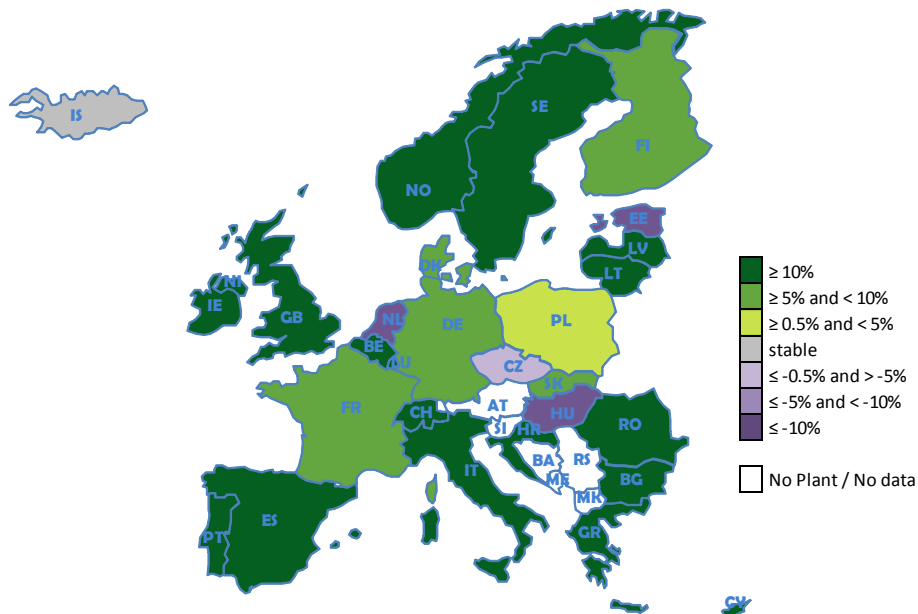
Evolution of nuclear net generation between 2012 and 2013



**Evolution of fossil fuels net generation between 2012 and 2013**



**Evolution of renewable net generation, excluding hydro, between 2012 and 2013**

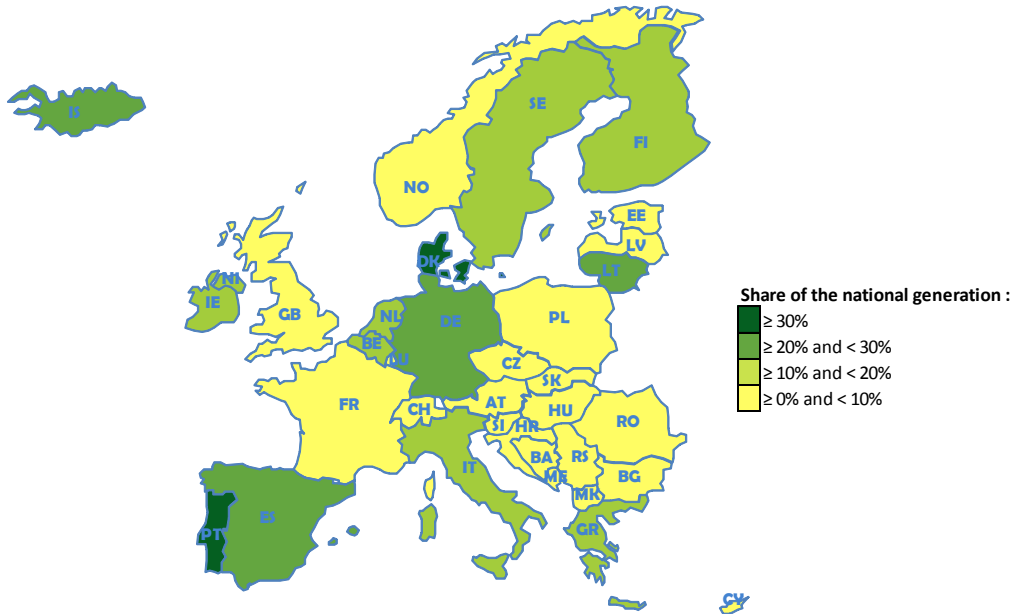


*Renewable generation excluding hydro includes non-fossil energy sources: wind; solar; geothermal; wave; tidal; biomass; landfill gas; sewage treatment plant gas and biogases*

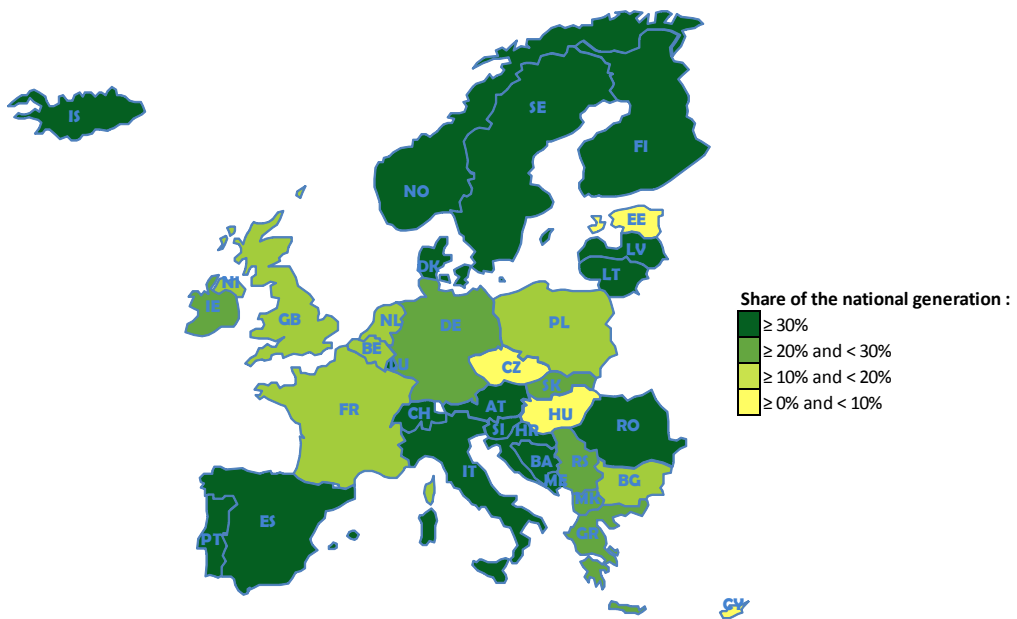


**d. Renewable net generation per country**

**Share of renewable net generation excluding hydro in 2013**



**Share of renewable net generation including hydro in 2013**



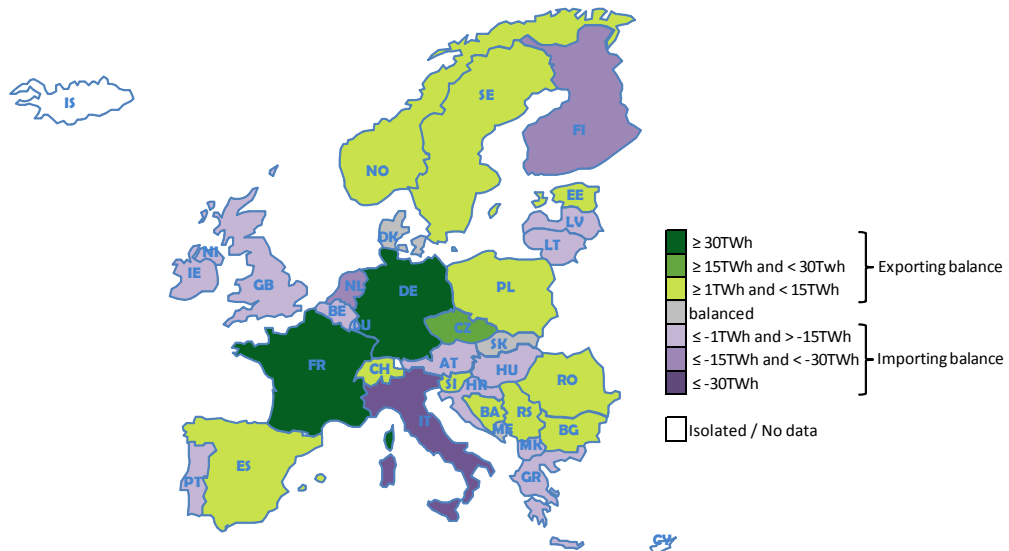
*The non renewable part of hydro related to pumped storage is included*



### 3. Cross-border exchanges

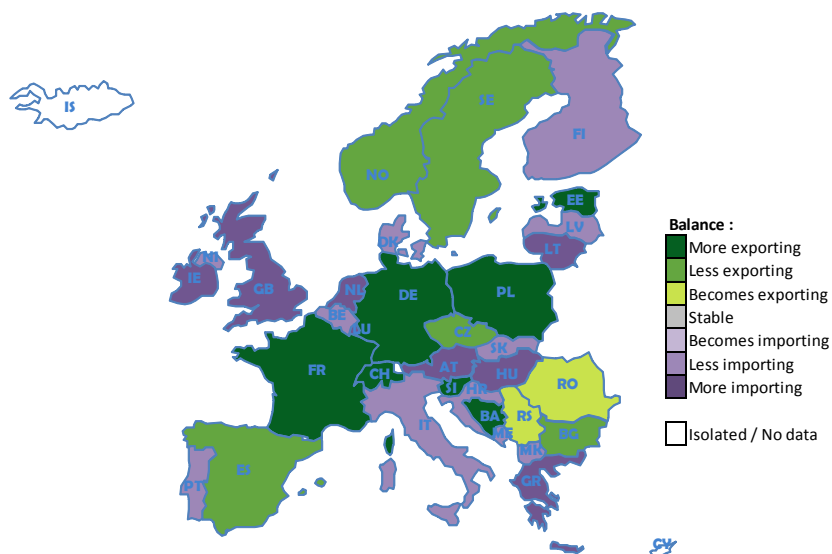
#### a. Balance of exchanges per country

Exchange balances in 2013



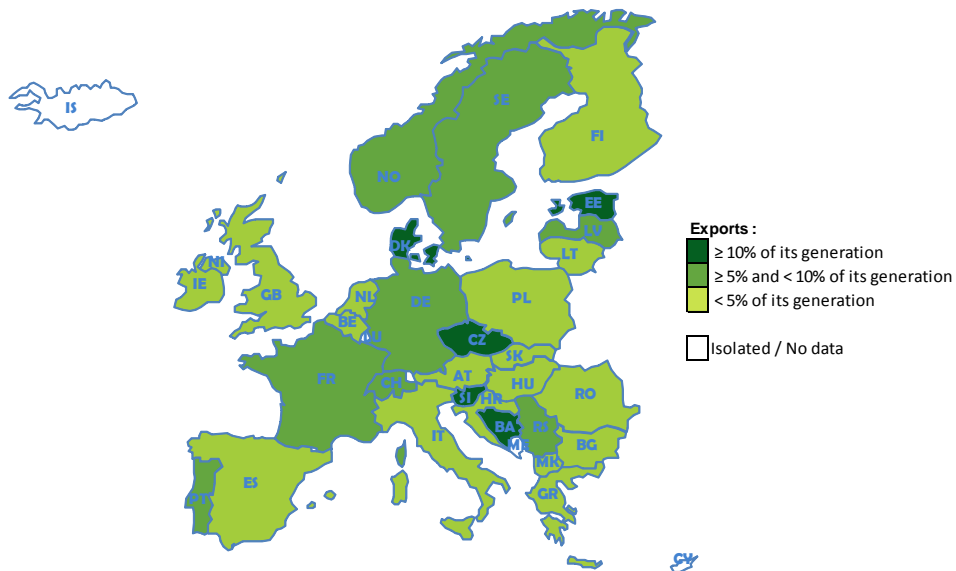
Balance of exchanges is the balance between energy physically flowing out of the country and energy physically flowing in. It is also equal to the balance of commercial transactions of each country (exports minus imports). Yet, in an interconnected system where electricity may spread out through various paths, energy physically flowing through a specific border between two countries usually differs from the commercial transactions between these two countries.

Evolution of exchange balances between 2012 and 2013



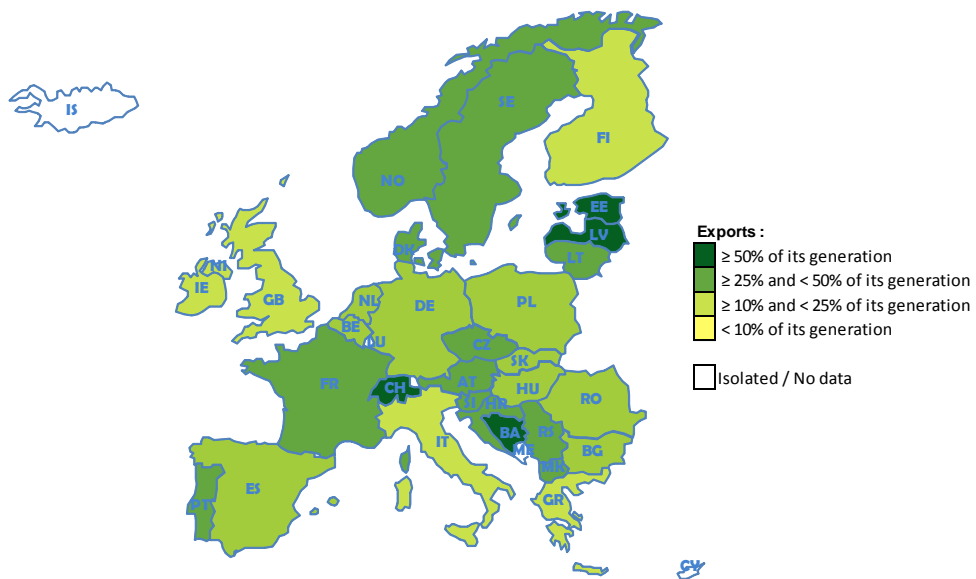
**b. Exports related to generation per country**

**Share of yearly generation exported in 2013**



*On each hourly time slot, the balance of exchanges of a country may be positive or negative. Adding these balances separately gives the amount of net exports and the amount of net imports of the country respectively. The ratio between net exports and generation of the country represents the share of its yearly generation which is physically exported to its neighbours. It reveals the use of the ENTSO-E interconnected network for the purpose of economic exports, without taking into account physical loop flows and transit-flows.*

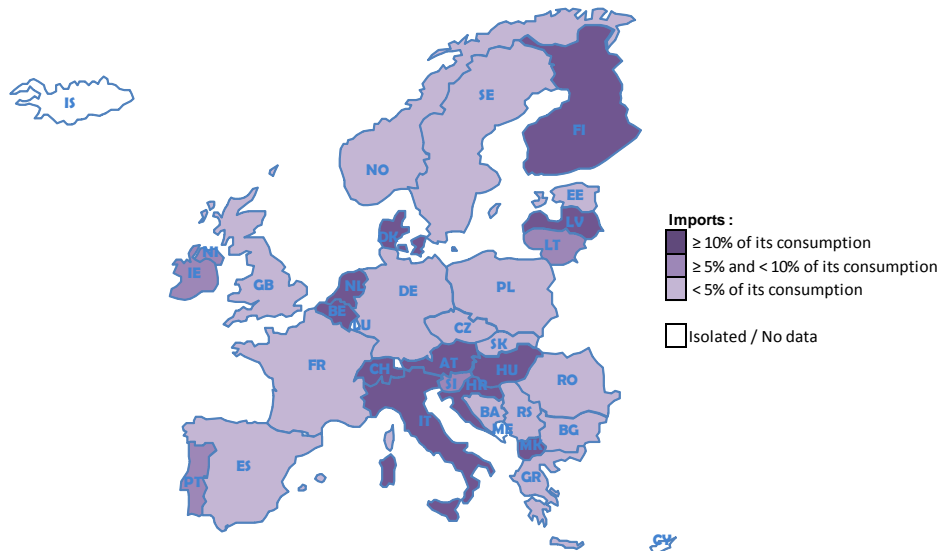
**Maximal hourly share of generation exported in 2013**



*This maximal ratio is not reached on the same hourly slot by all ENTSO-E countries*

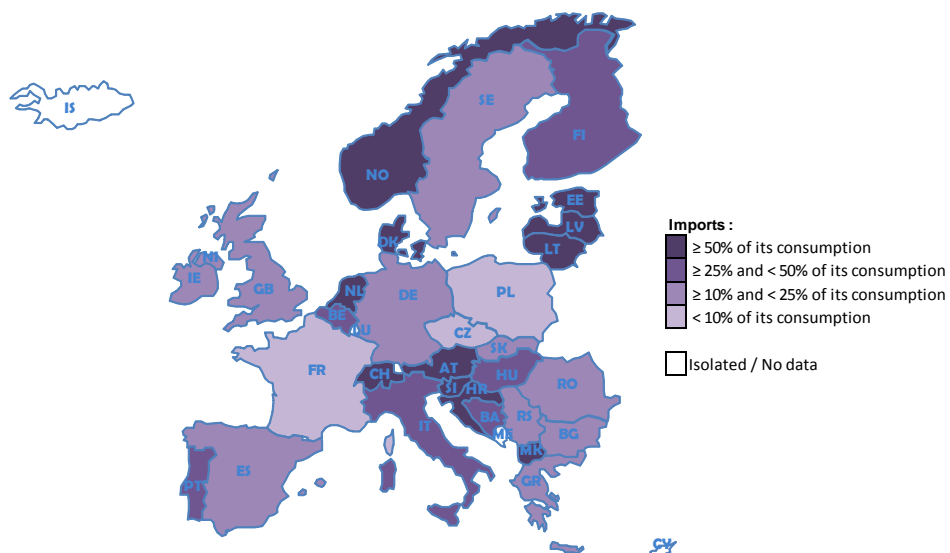
### c. Imports related to consumption per country

Share of yearly consumption imported in 2013



The ratio between net imports and consumption of the country represents the share of its yearly consumption which is physically imported from its neighbours. It reveals the use of the ENTSO-E interconnected network for the purpose of economic imports, without taking into account physical loop flows and transit-flows.

Maximal hourly share of consumption imported in 2013



This maximal ratio is not reached on the same hourly slot by all ENTSO-E countries

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## Appendix: Data sources and references

*ENTSO-E data portal:* <https://www.entsoe.eu/data/data-portal/>

*Monthly statistics:* <https://www.entsoe.eu/publications/statistics/monthly-statistics/>

*Statistical Factsheet:* <https://www.entsoe.eu/publications/general-publications/memo-entso-e-facts-figures/>

*YS&AR:* <https://www.entsoe.eu/publications/statistics/statistical-yearbooks/>

*ENTSO-E commercial data:* <http://entsoe.net>

## Contributors

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