Interconnected Network of ENTSO-E 2023

(as of 24/08/2023)

0 50 100 200 300 400 km

Scale: 1:4.000.000

Lines and cables

Different voltages (colours)

- 750 kV transmission line
- 500 kV transmission line
- 380-400 kV transmission line
- 300-330 kV transmission line
- 220 kV transmission line
- 150-170 kV transmission line
- DC line

Different lines (for all voltages) under operation

- 1 circuit
- Double circuit
- Double circuit with 1 circuit mounted
- 3 circuits

Additional information for all lines and voltages

- Under construction (dashed)
- Underground (for onshore lines and cables)
- Currently used voltage
- Temporary voltage
- Numeral as explained below

Other elements

- Connection line
- Phase shifter, under construction
- Substation, under construction
- Converter Station
- Converter Station Back-to-back
- Substations + Power Plants

Power plants

Symbols for under operation and under construction

- Biogas
- Biomass
- Brown coal/Lignite
- Coal derived gas
- Fossil gas
- Fossil peat
- Fossil oil
- Fossil peat
- Geothermal
- Hydro pump
- Hydro marine
- Hydro mixed pump storage
- Hydro pure pump storage
- Hydro pure storage
- Hydro run of river & pondage
- Mixed fuels
- Peat
- Oil shale
- Other fossil fuels
- Other or not listed
- Solar
- Solar photovoltaic
- Solar thermic
- Waste
- Waste (non renewable)
- Waste (renewable)
- Wind farm

NGC threshold in MW

All existing power plants and those under construction with NGC (Net Generating Capacity) equal or higher than the values indicated in the table below are represented on the map. Power plants are classified according to their primary energy source (Combined Heat & Power classification base: natural gas, biomass, ...) is based on main fuel. The third column of the table below indicates the visibility of CHP by country.

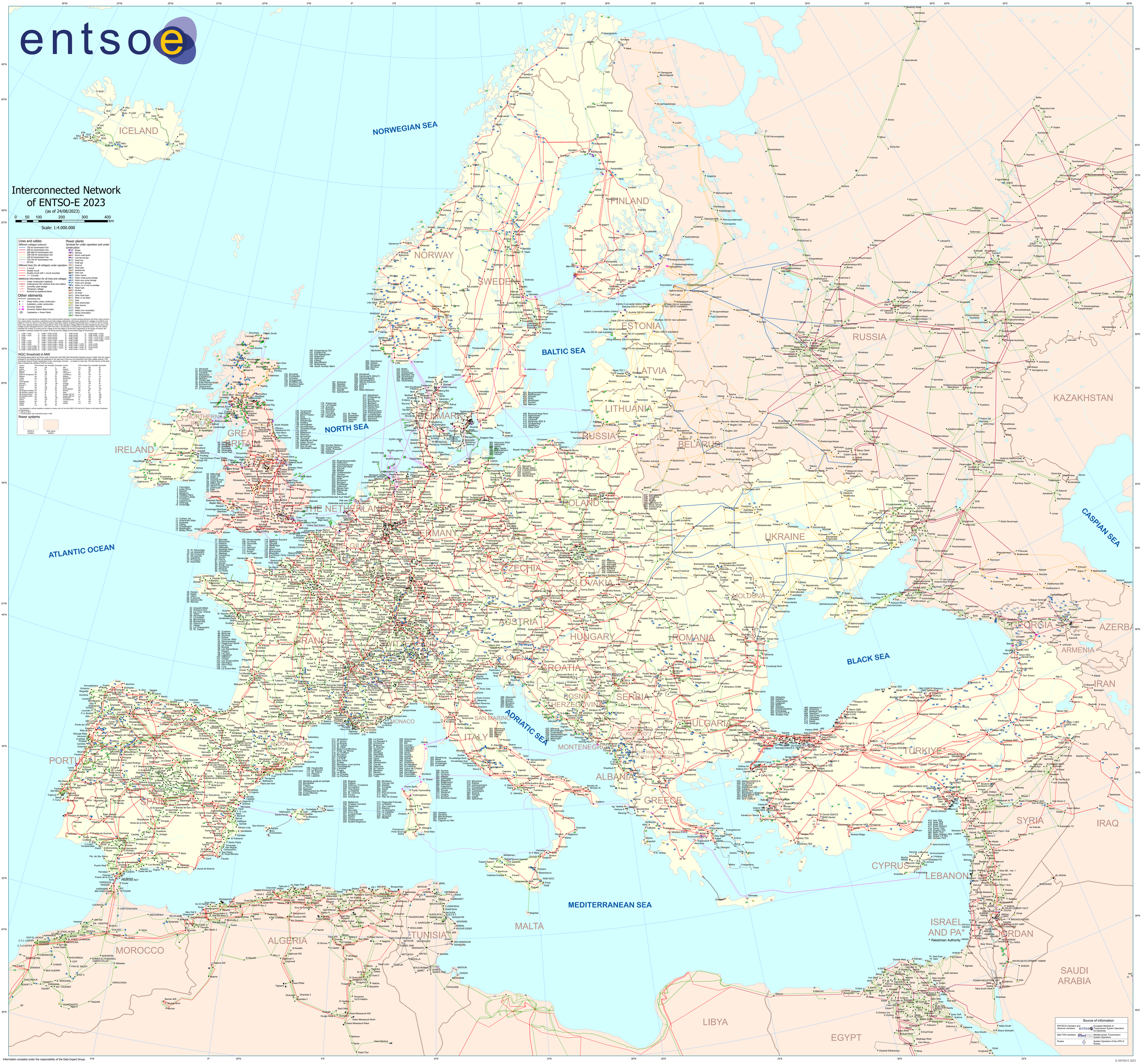
	NGC threshold	CHP included	CHPs included: Non-renewable	CHPs included: Renewable
Albania	yes	no	no	no
Austria	n.a.	no	yes	no
Bosnia-Herz.	n.a.	yes	yes	yes
Belgium	yes	yes	yes	yes
Bulgaria Montenegro	yes	yes	yes	yes
Bulgaria	yes	75	60	50
Croatia	yes	yes	yes	yes
Cyprus	yes	100	50	50
Czech Republic	yes	150	50	50
Denmark	yes	25	25	25
Estonia**	yes	10	10	10
Finland	yes	100	50	50
France	yes	150	50	50
Germany & Neth.	yes	50	50	50
GB Southern Island	yes	30	30	30
GB Outland North	yes	30	30	30
Great Britain North	yes	100	100	100
Greece	yes	100	50	50
Hungary	yes	50	50	50
Ireland	yes	50	50	50
Iceland	yes	10	10	10
Italy	yes	10	10	10
Kosovo	n.a.	no	n.a.	n.a.
Latvia	yes	10	10	10
Lithuania	yes	10	10	10
Luxembourg	yes	10	10	10
Malta	n.a.	no	n.a.	n.a.
Moldova	n.a.	no	n.a.	n.a.
Norway	yes	100	50	50
Poland	yes	100	50	50
Portugal	yes	50	50	50
Romania	yes	50	50	50
Serbia	yes	50	50	50
Slovak Republic	yes	100	50	100
Slovenia	yes	50	50	50
Spain	yes	50	50	50
Sweden (220 kV)	n.a.	no	100	100
Sweden (400 kV)	n.a.	no	100	100
Switzerland	n.a.	no	100	100
Turkey Netherlands	yes	50	50	50
Turkey	n.a.	no	50	50
Ukraine	n.a.	no	n.a.	n.a.

* Pre-designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of independence.

** Estonia is synchronously with Continental Europe in 2025

Power systems

- ENTSO-E members
- Other power systems



Source of information	
ENTSO-E members and observer members	European Network of Transmission System Operators for Electricity
Med TSO members	Mediterranean Transmission System Operators
Russia	System Operators of the UPS of Russia

Information compiled under the responsibility of the Data Expert Group.

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