

The European Union's Low Carbon Energy Transition: Progress and Obstacles

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European Union

- Energy Dependency
- Climate Change
- Energy Union
- National Differences

Energy Union



The EU Energy System

53%

of EU energy
imported in
2014

€400 billion

spent on energy imports
in 2014

6

Member States
depend on a single
external supplier
for their entire gas
imports

75%

of EU housing
stock is energy
inefficient

94%

of EU transport relies
on oil products (of
which 90% imported)

30%

EU wholesale
electricity prices
higher than US

4.4%

rise in EU household
electricity prices
2012-2013

€1 trillion

investments into the
EU energy sector
needed by 2020

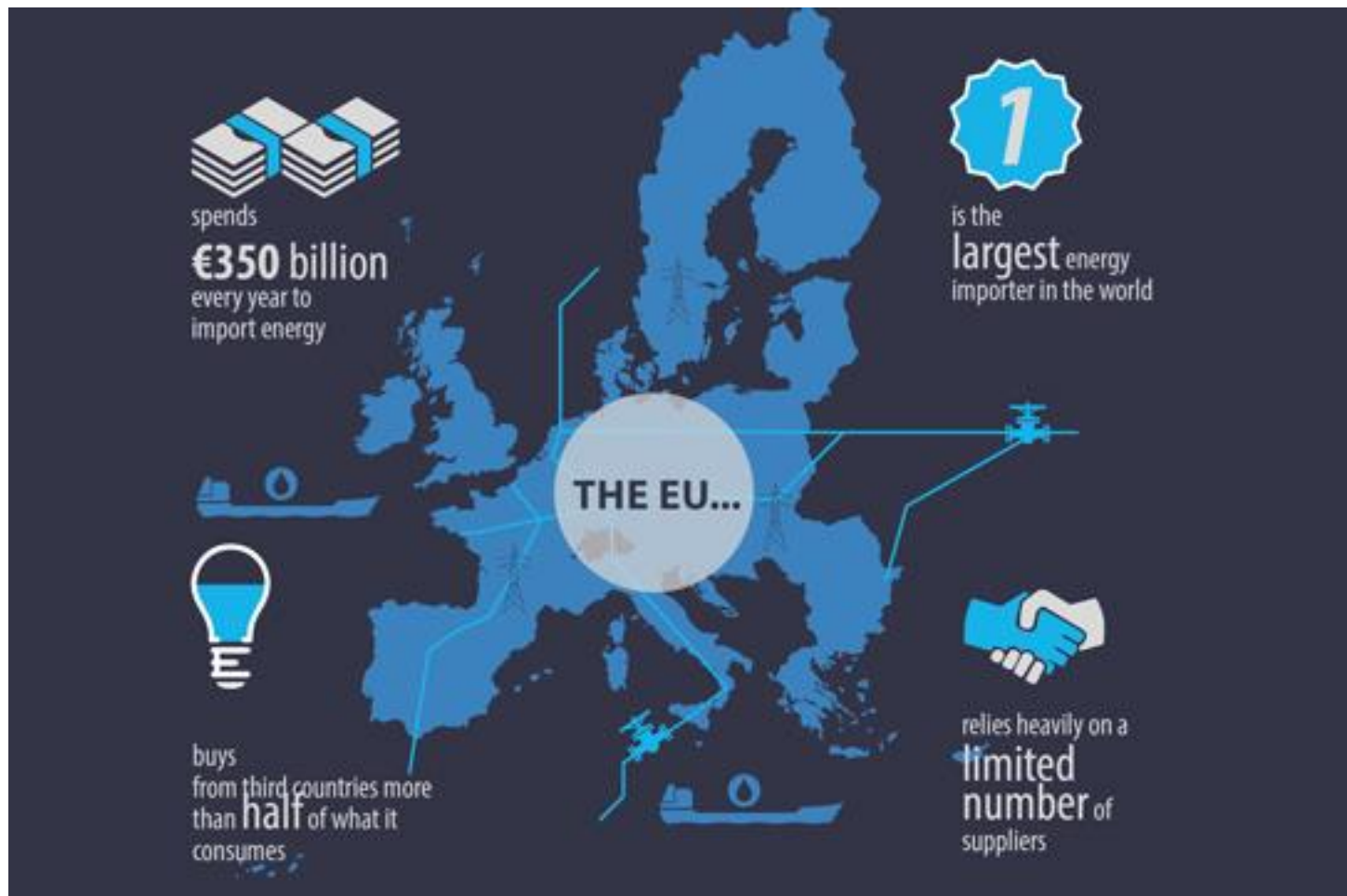
€120 billion

per year spent on energy
subsidies (directly or
indirectly)

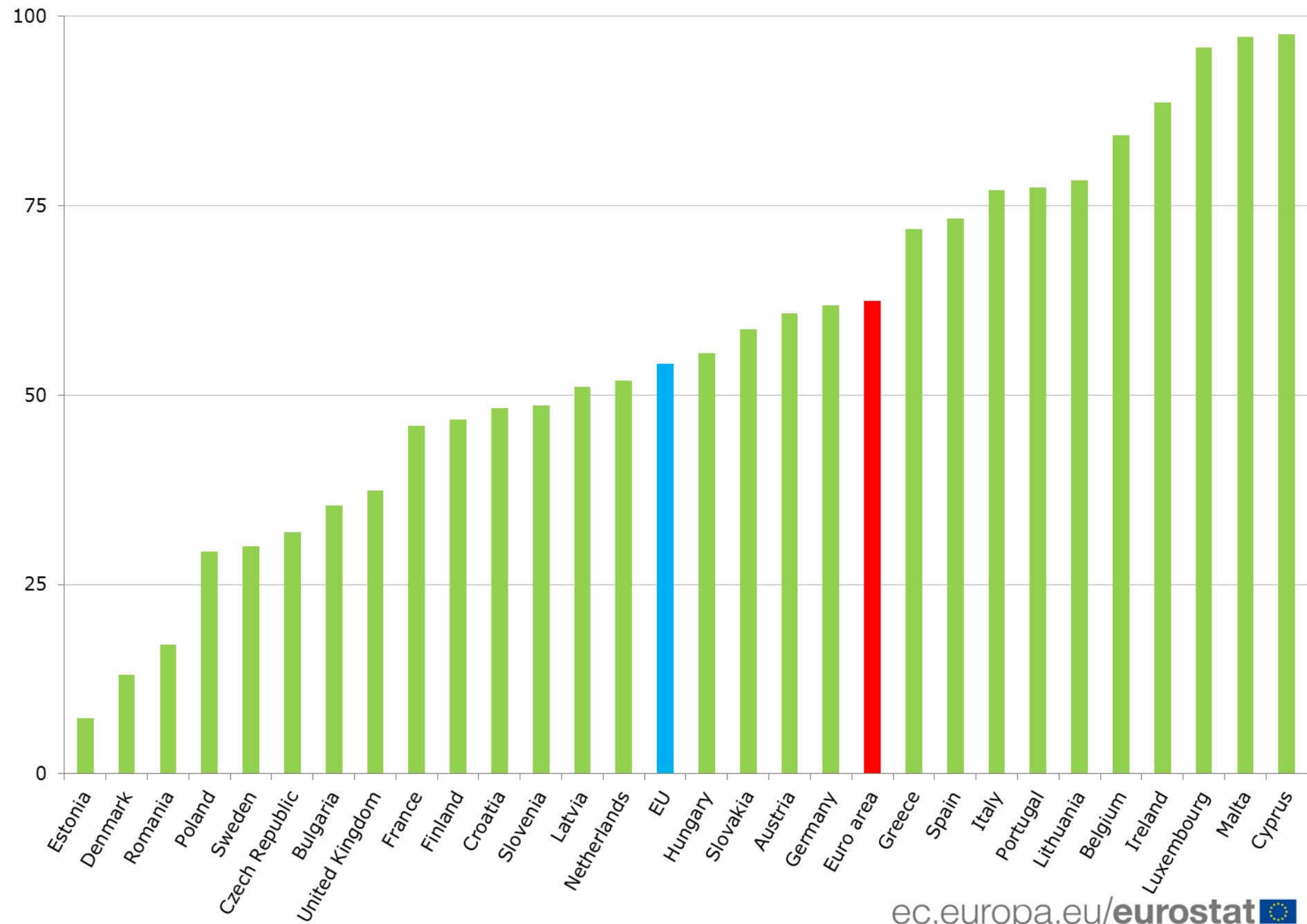
€129 billion

annual turnover of EU
renewable energy
businesses

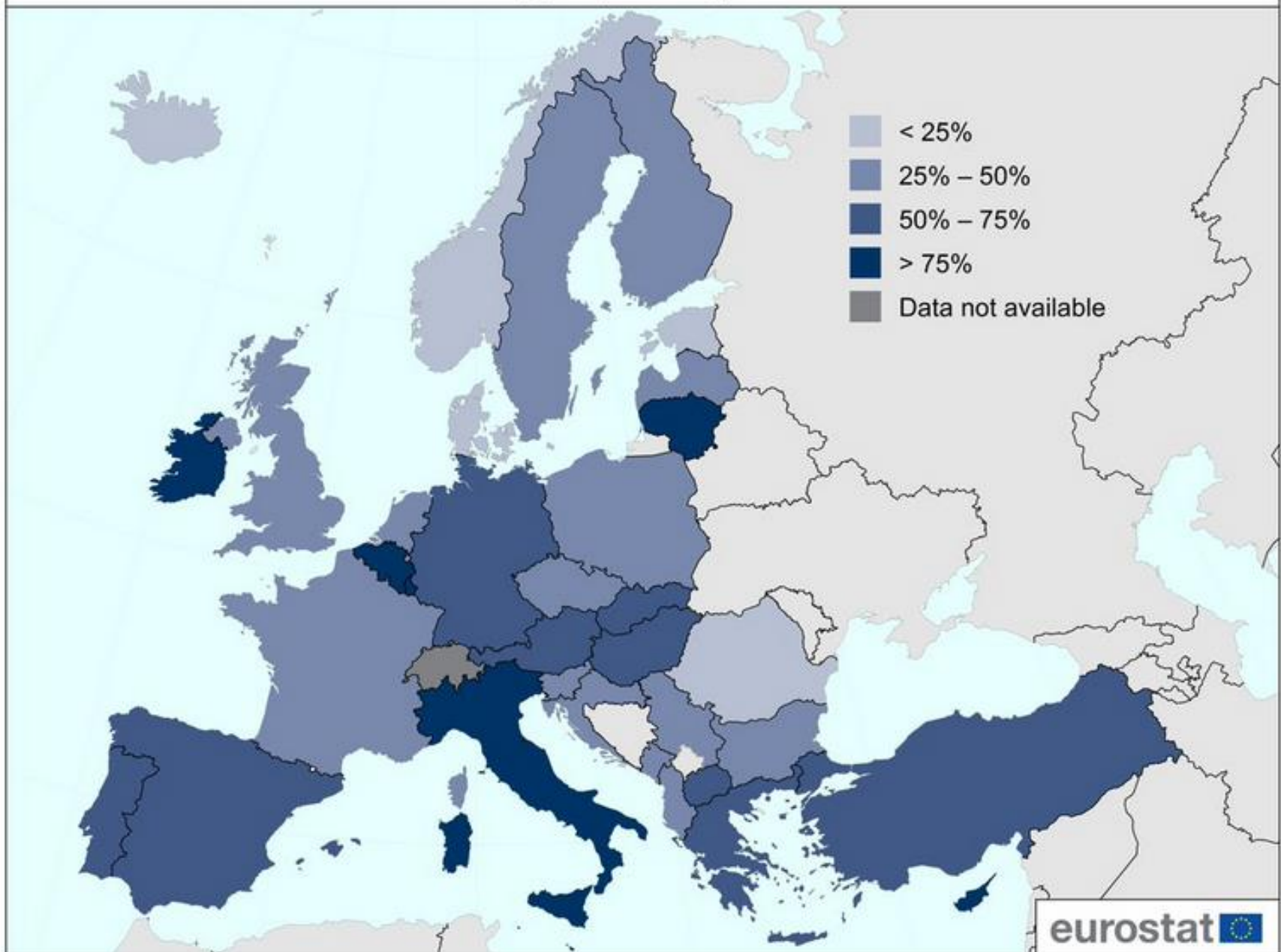
Source: EU Commission Communication on "A framework Strategy for a Resilient Energy Union with Forward-Looking Climate Change Policy", 25 February 2015.



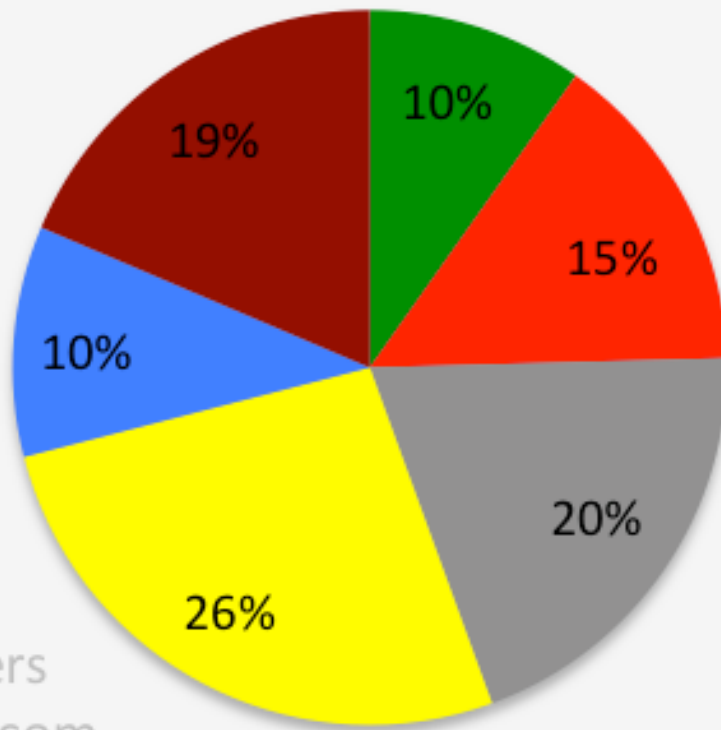
Energy dependency rate in the EU Member States, 2015



Energy dependency, 2014

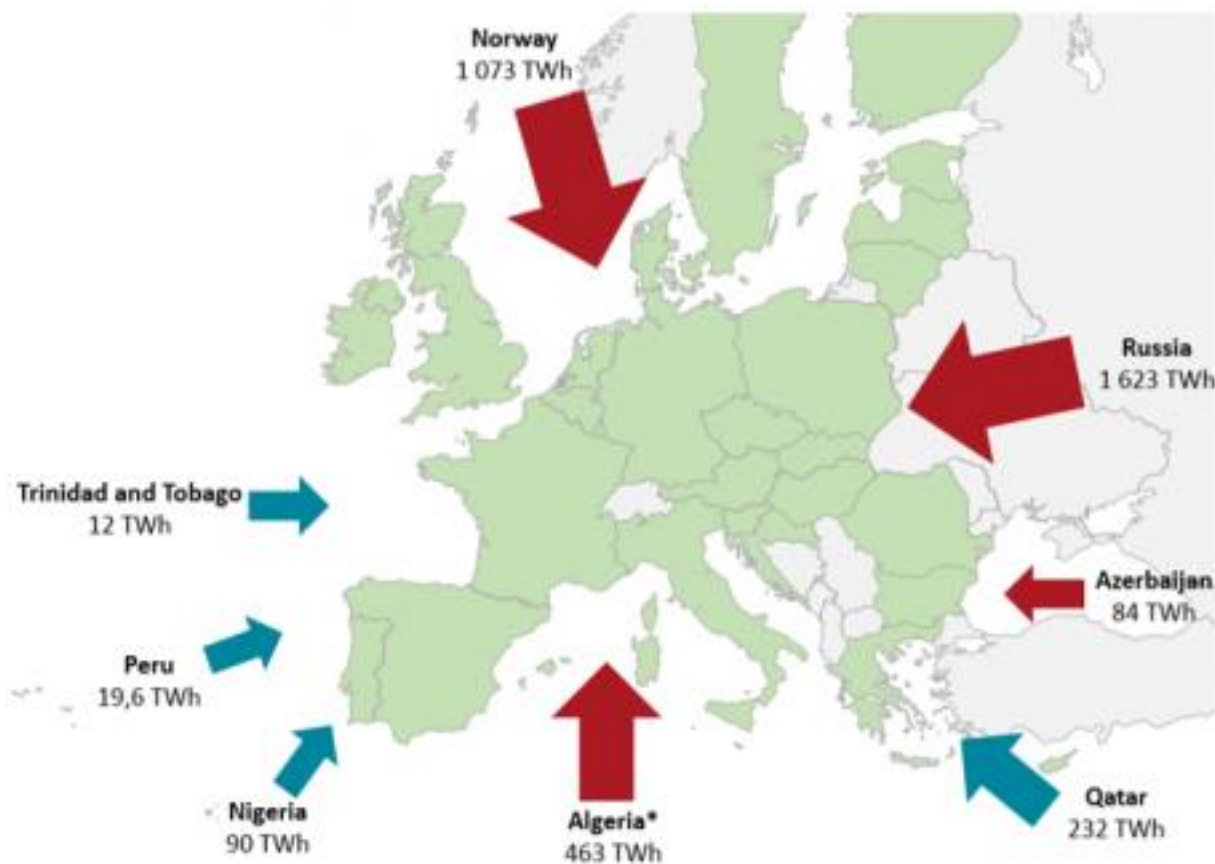


EU energy production 2015



- Oil
- Gas
- Coal
- Nuclear
- Hydro
- Renewables

EU Sources of Imported Gas

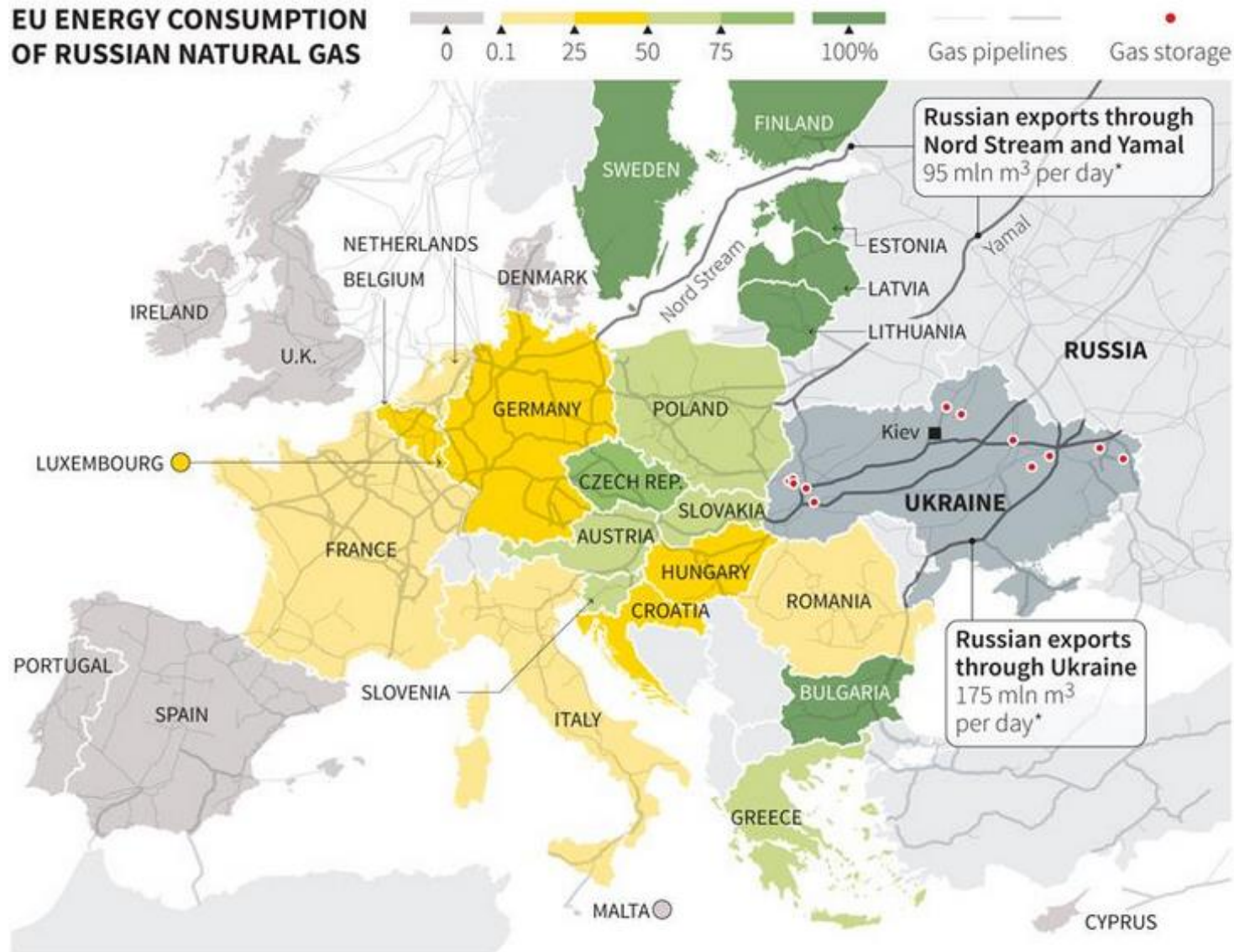


Source: BP Statistical Review of World Energy (June 2017)

EU imports of Russian gas

Russia is Europe's biggest gas supplier, providing about a quarter of continental demand. A third of gas is exported through Ukraine.

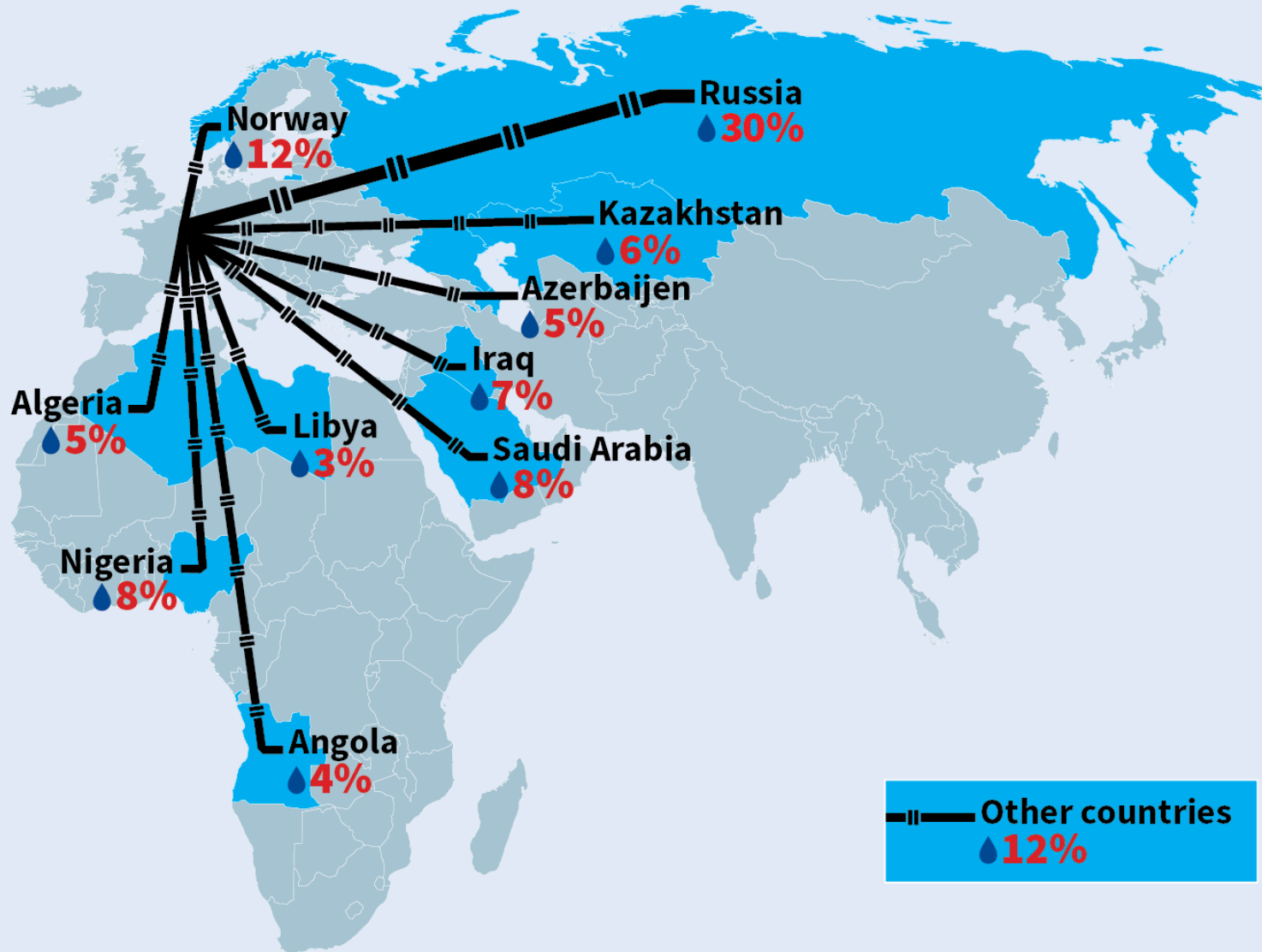
EU ENERGY CONSUMPTION OF RUSSIAN NATURAL GAS

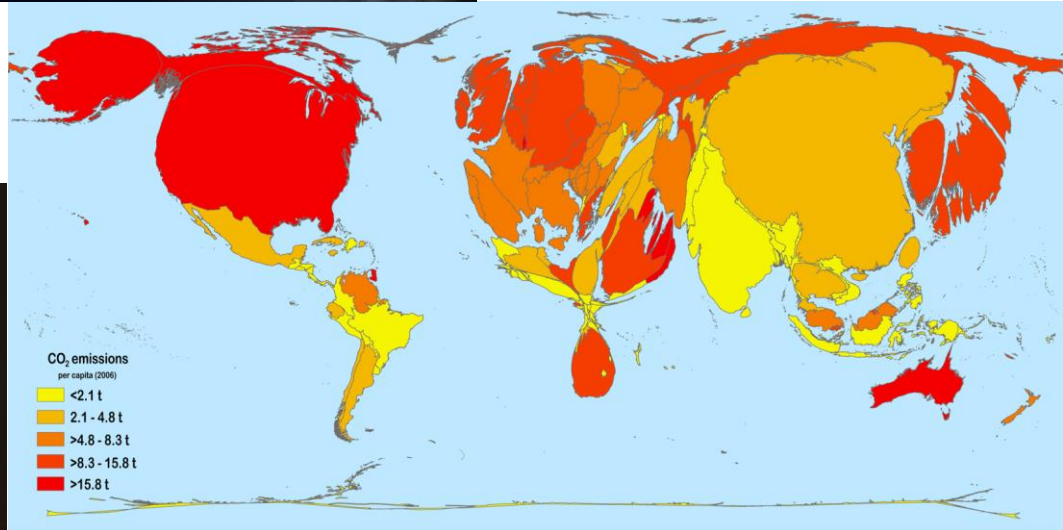


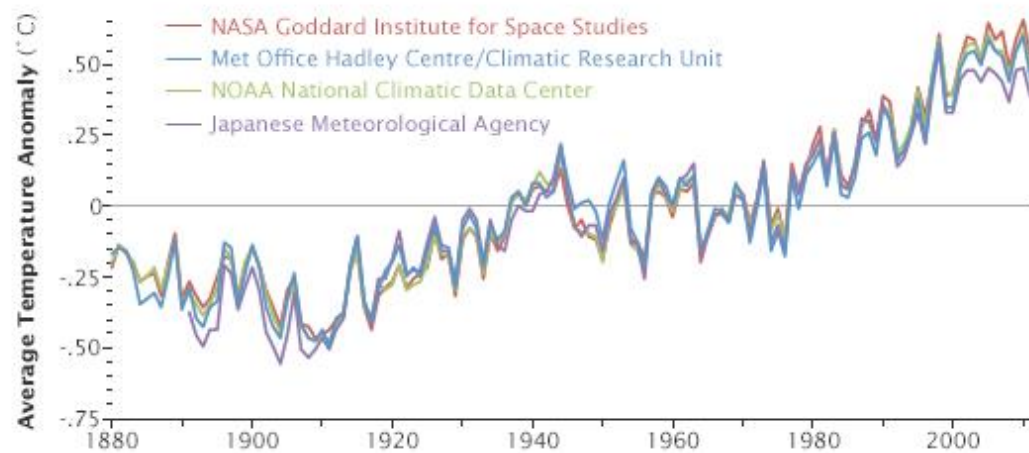
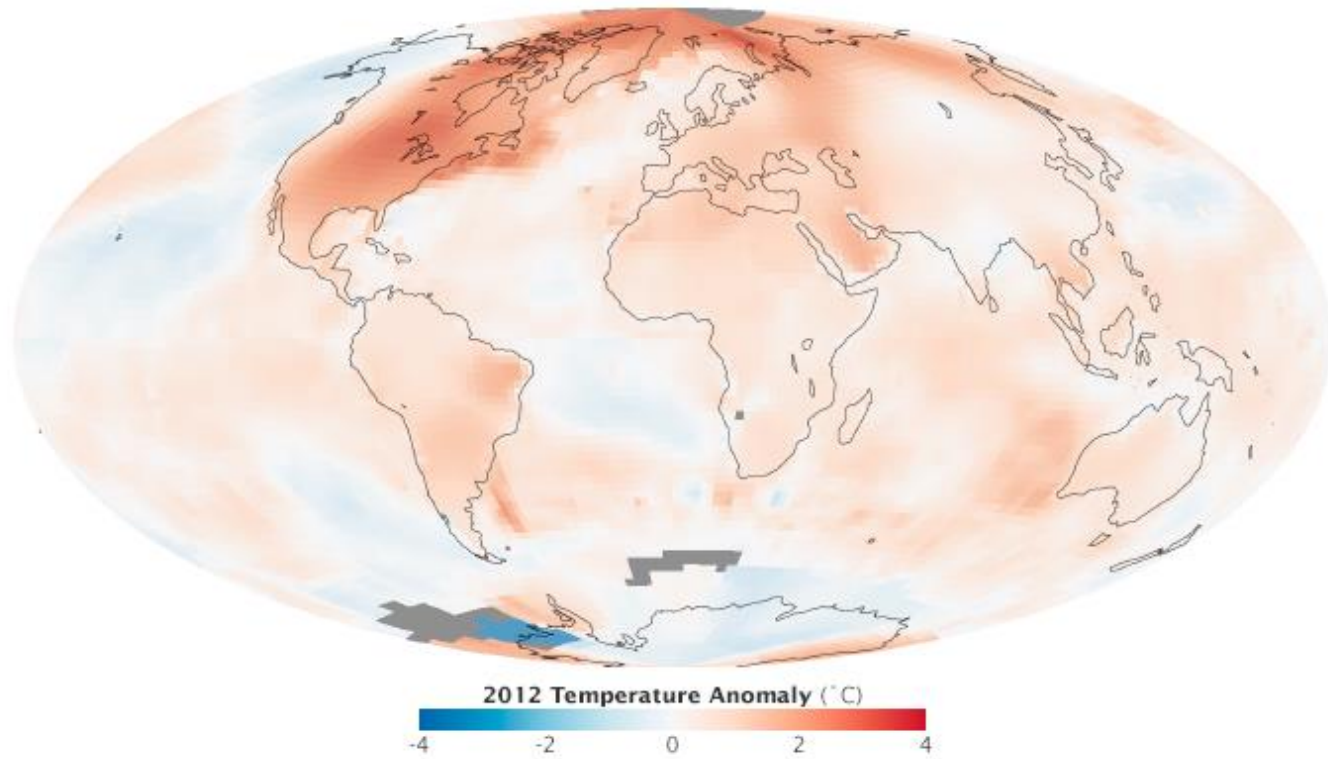
Sources: Gas Infrastructure Europe; Reuters; industry data

* Current estimates.

Russia: EU's main oil supplier

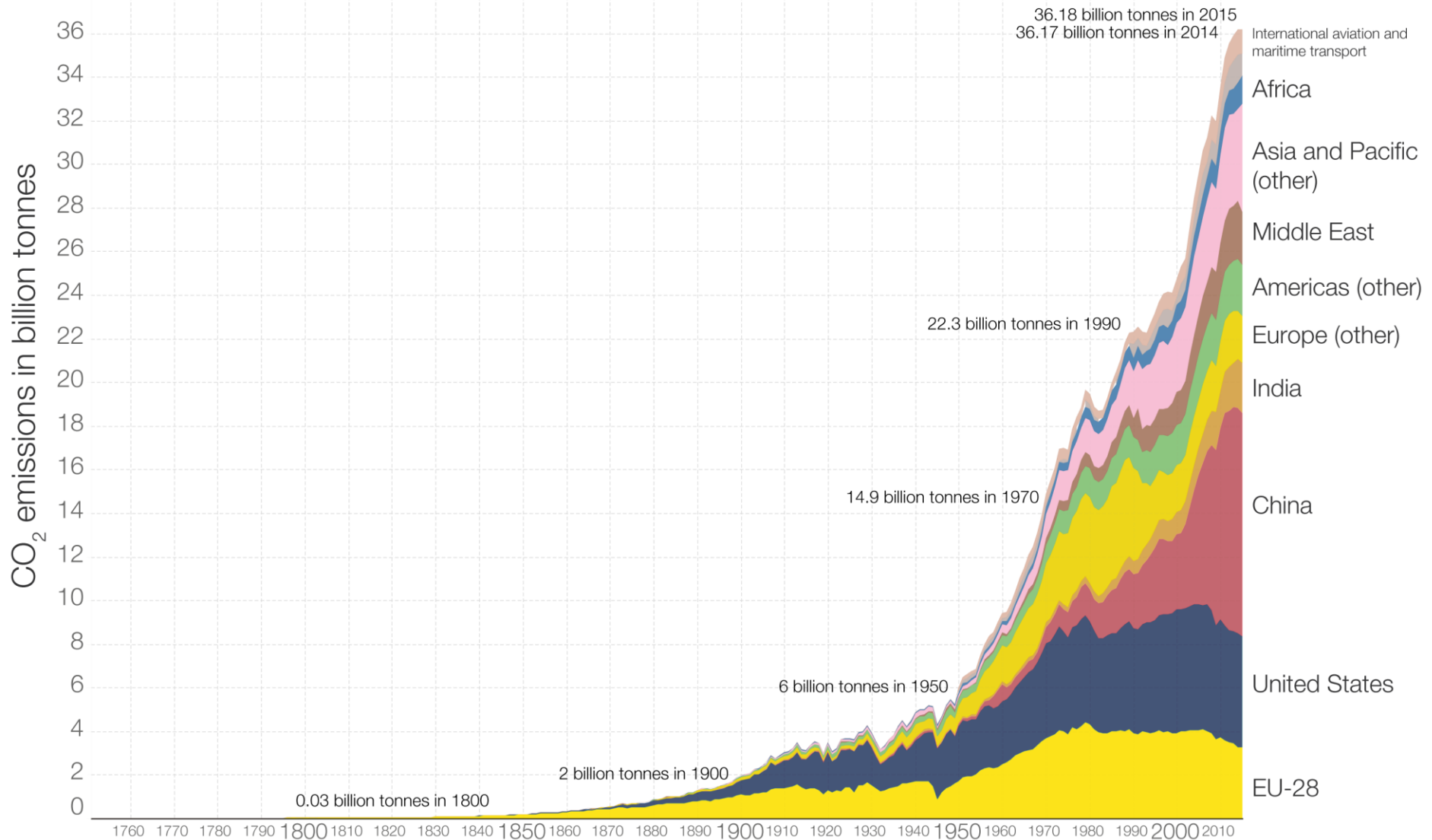






Global CO₂ emissions by world region, 1751 to 2015

Annual carbon dioxide emissions in billion tonnes (Gt).



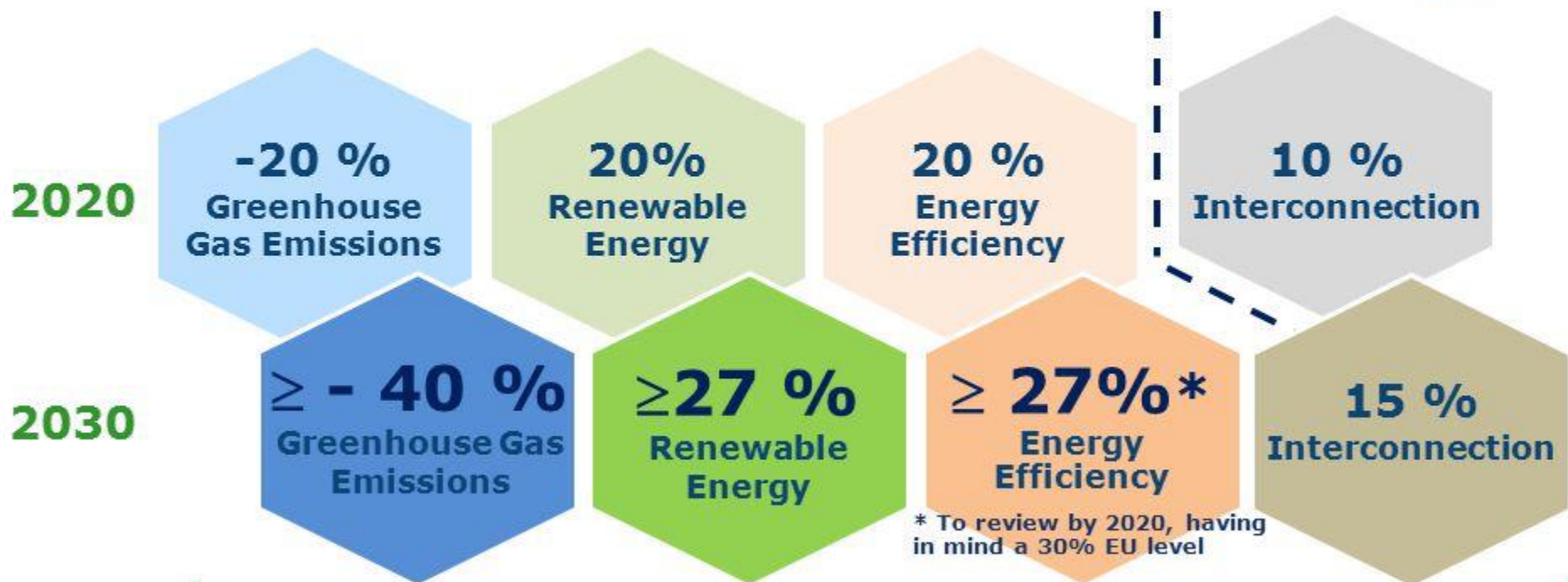
Data source: Carbon Dioxide Information Analysis Center (CDIAC); aggregation by world region by Our World In Data.
The interactive data visualization is available at OurWorldinData.org. There you find the raw data and more visualizations on this topic.

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Bonn Climate Conference



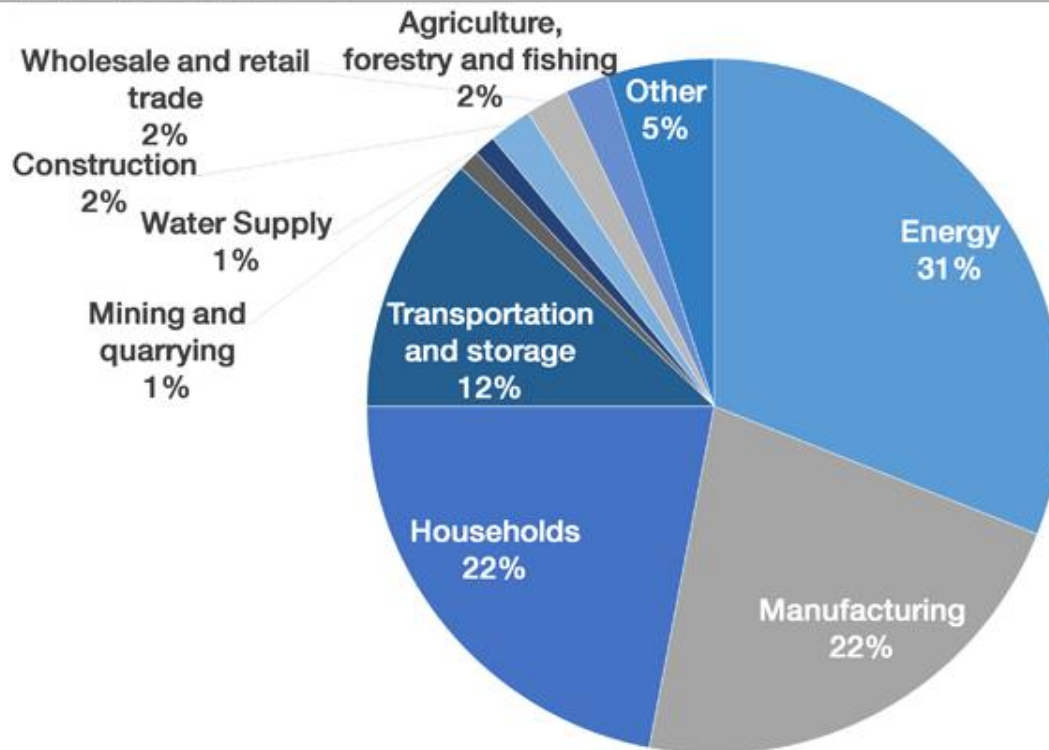
Agreed headline targets - 2014 EU Council 2030 Framework for Climate and Energy



New governance system + indicators

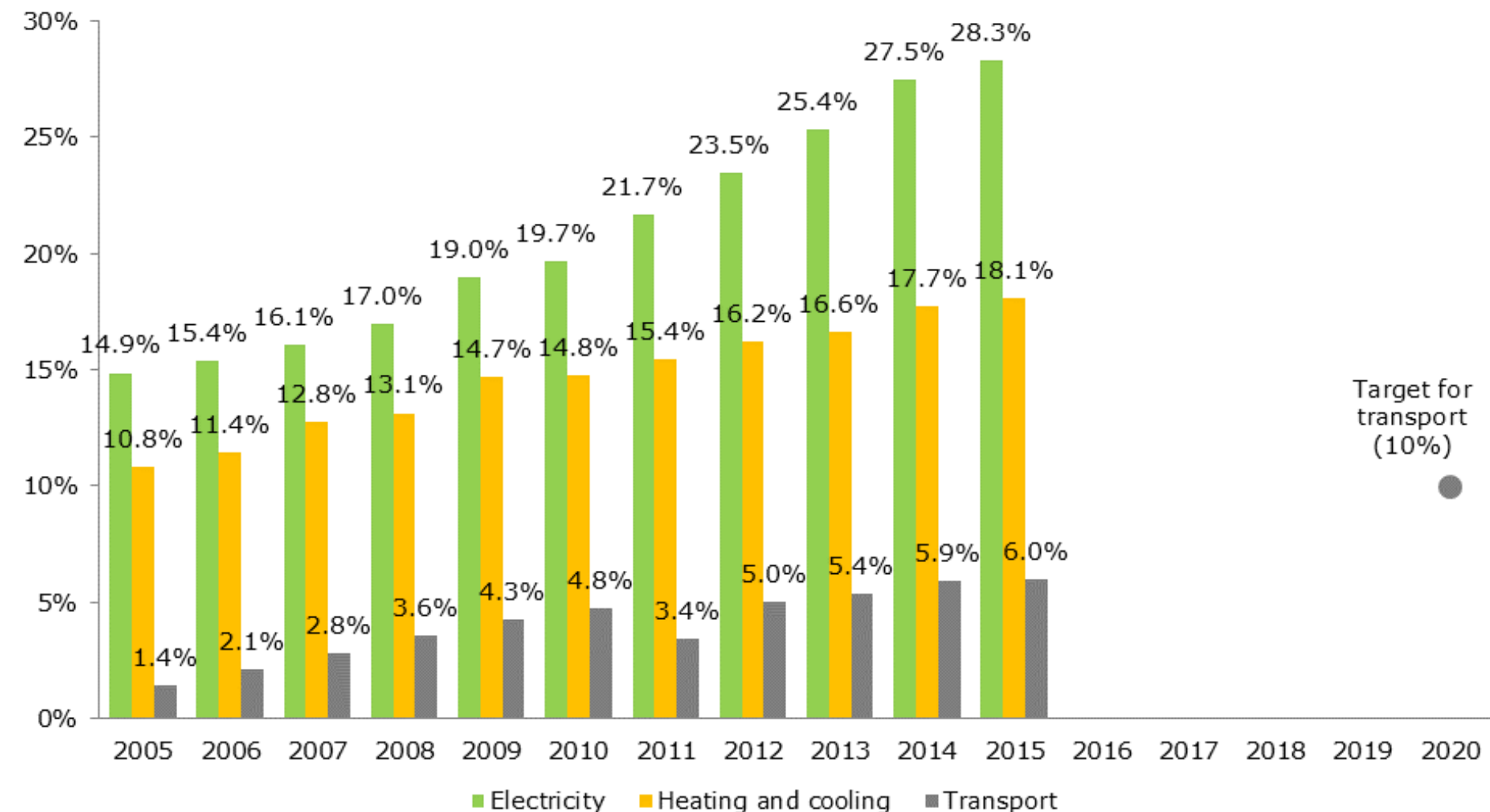
What are the sources of European CO₂ emissions?

OECD Environmental Statistics

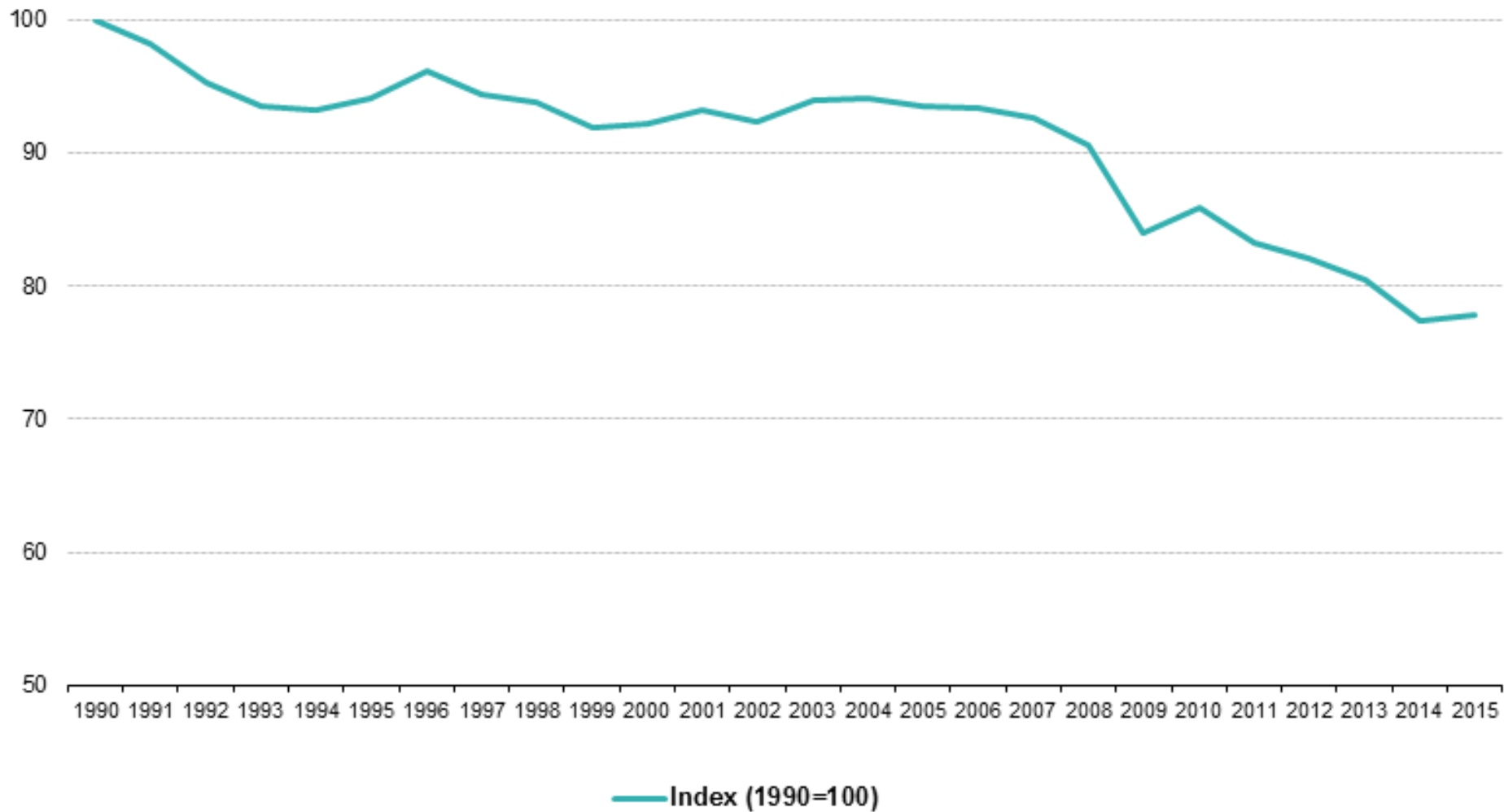


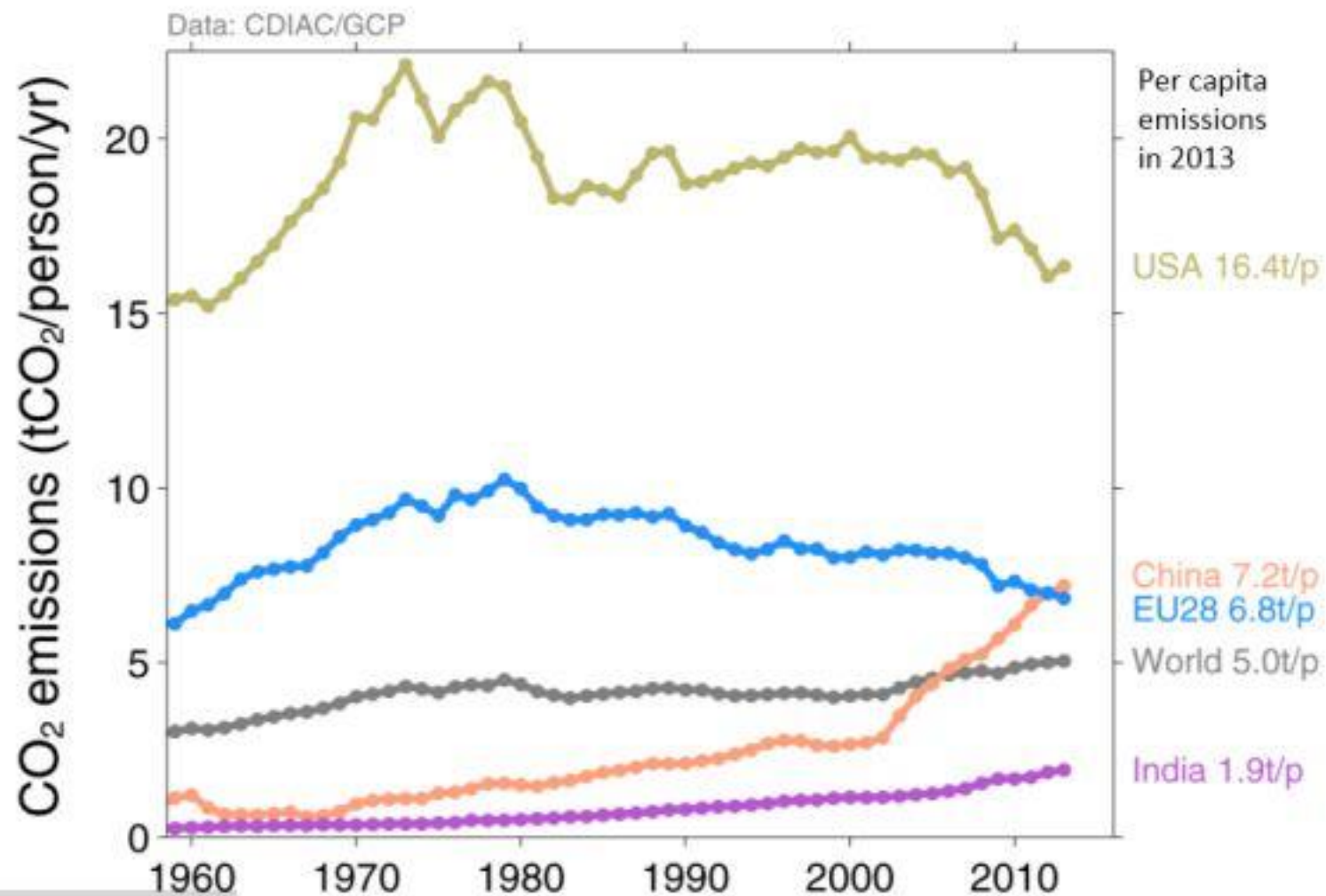
Source: OECD

Share of energy from renewable sources in gross final energy consumption, per sector

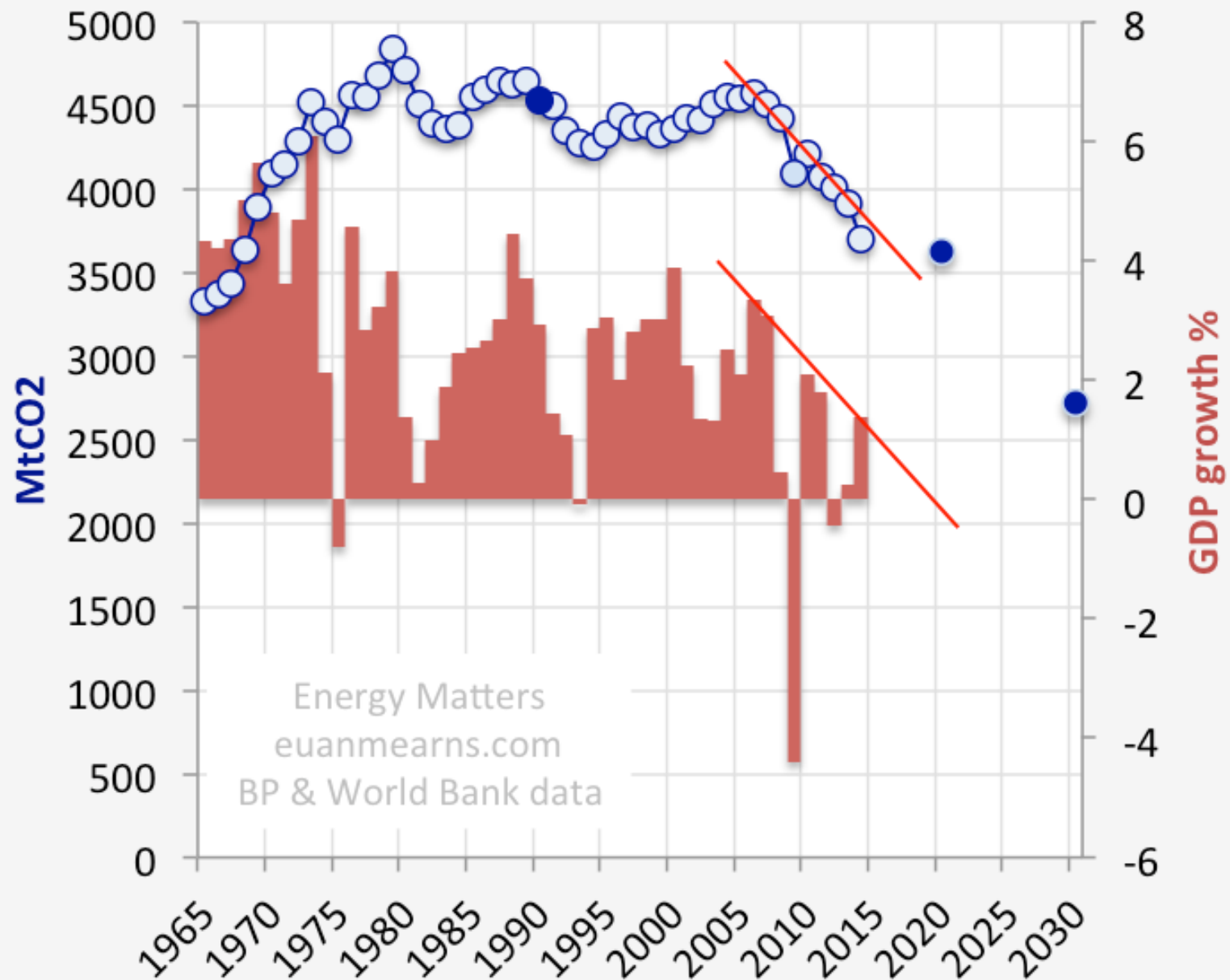


EU GHG Emissions 1990-2015

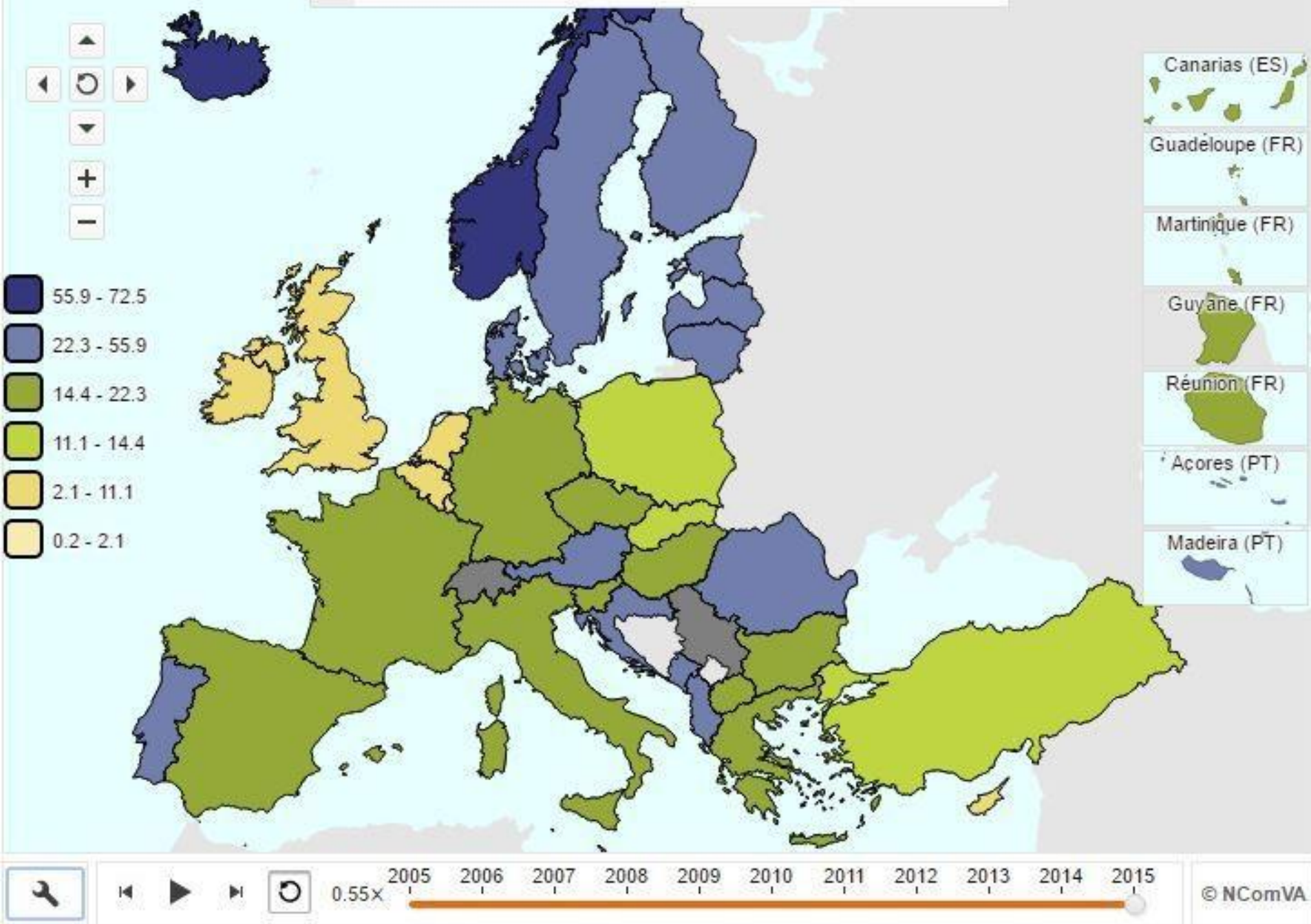




EU CO2 Emissions and Growth

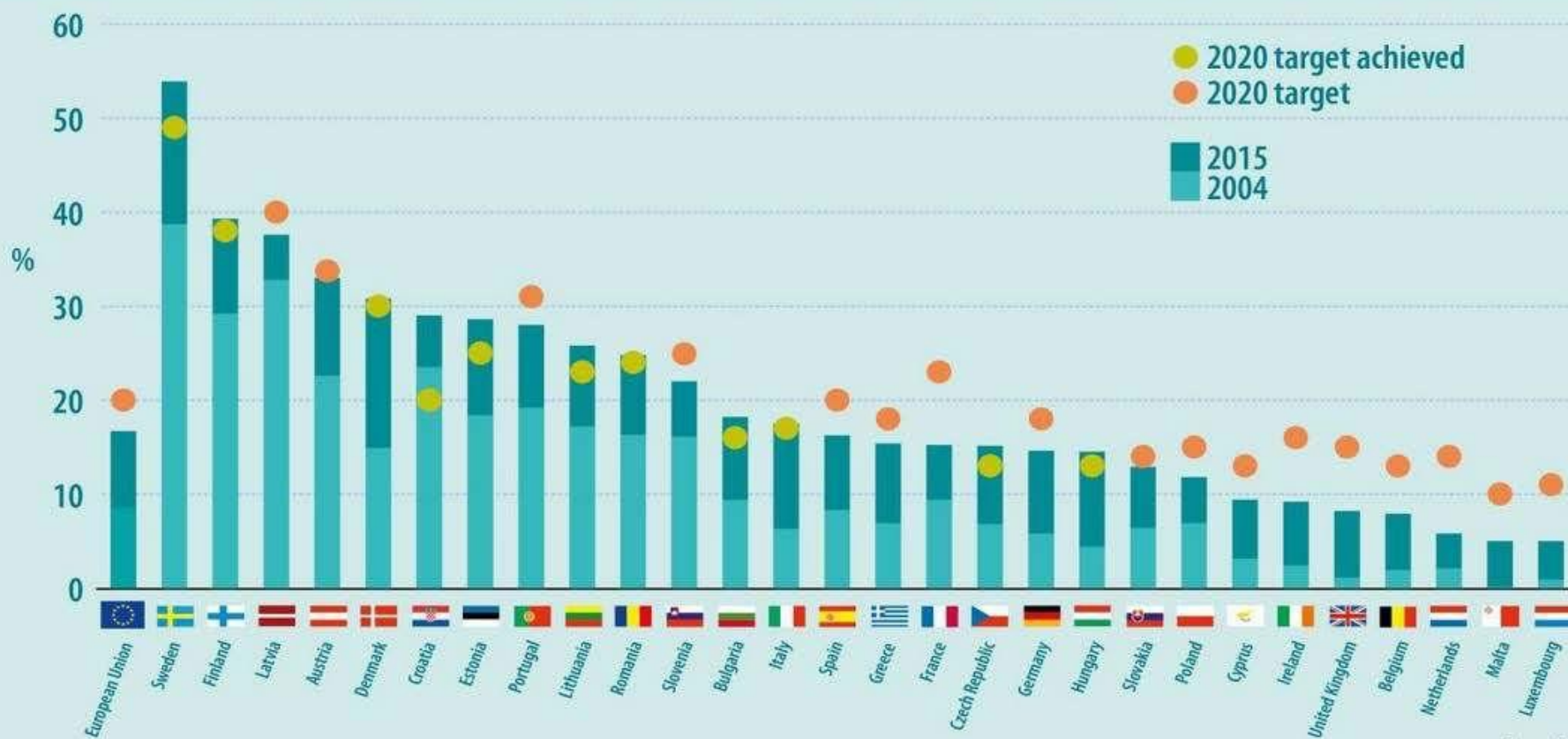


i Share of renewable energy in gross final energy consumption ▾



Share of energy from renewable sources in the EU Member States

(in % of gross final energy consumption)

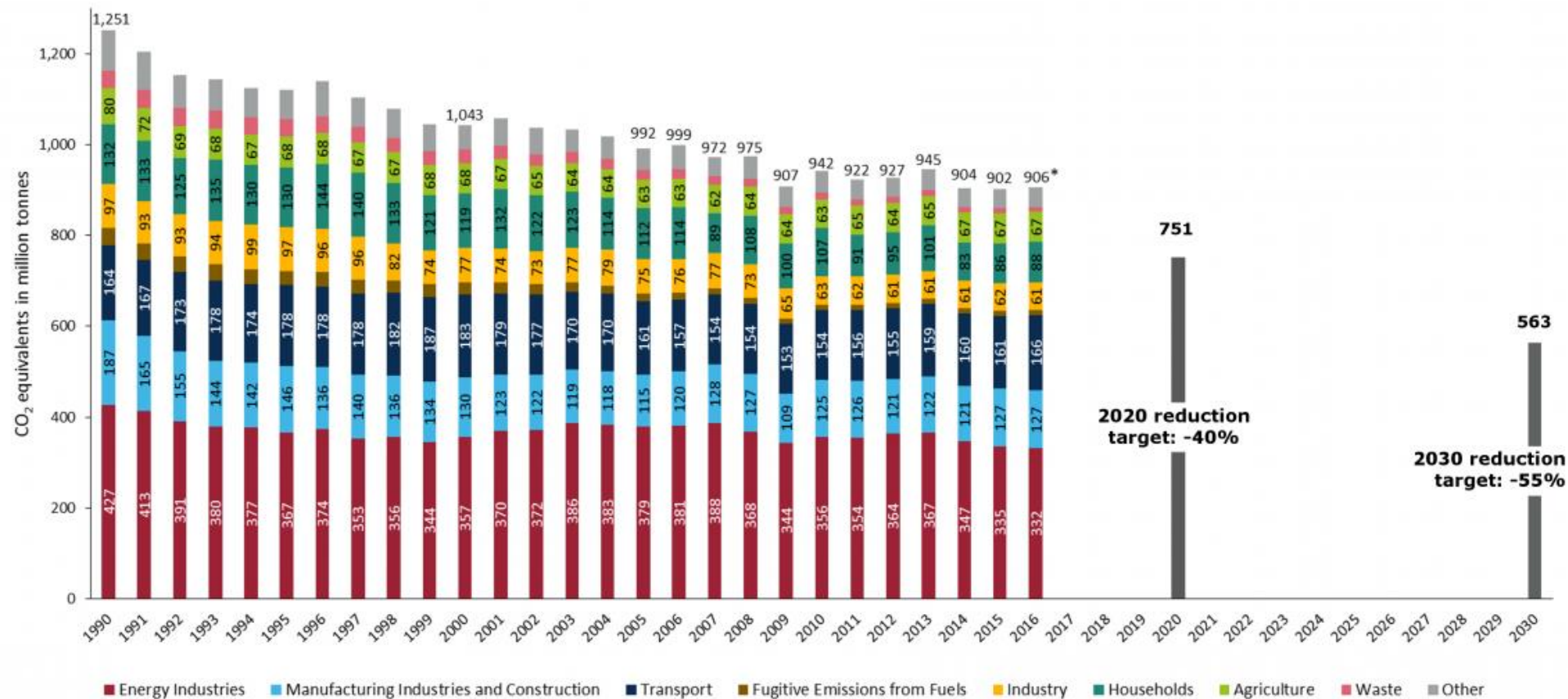


ENERGIEWENDE TARGETS

	Reduction of nuclear energy	Share of Renewable Energy		Reduction GHG- Emissions	Reduction of Energy Demand			
		Gross final energy	Electricity Productio n		Primary Energy	Domestic Heat	Final Energy Transport	Electricity Demand
2015 2017 2019	-47% -56% -60%							
2020		18%	35%	-40%	-20%	-20%	-10%	-10%
2021 2022 2025	-80% -100%		40-45%					
2030 2035		30%	50% 55-60%	-55%				
2040		45%	65%	-70%				
2050		60%	80%	-80% bis 95%	-50%	-80%	-40%	-25%
Basis	2010	-	-	1990	2008	2008	2005	2008

Greenhouse gas emission trends in Germany by sector 1990-2016.

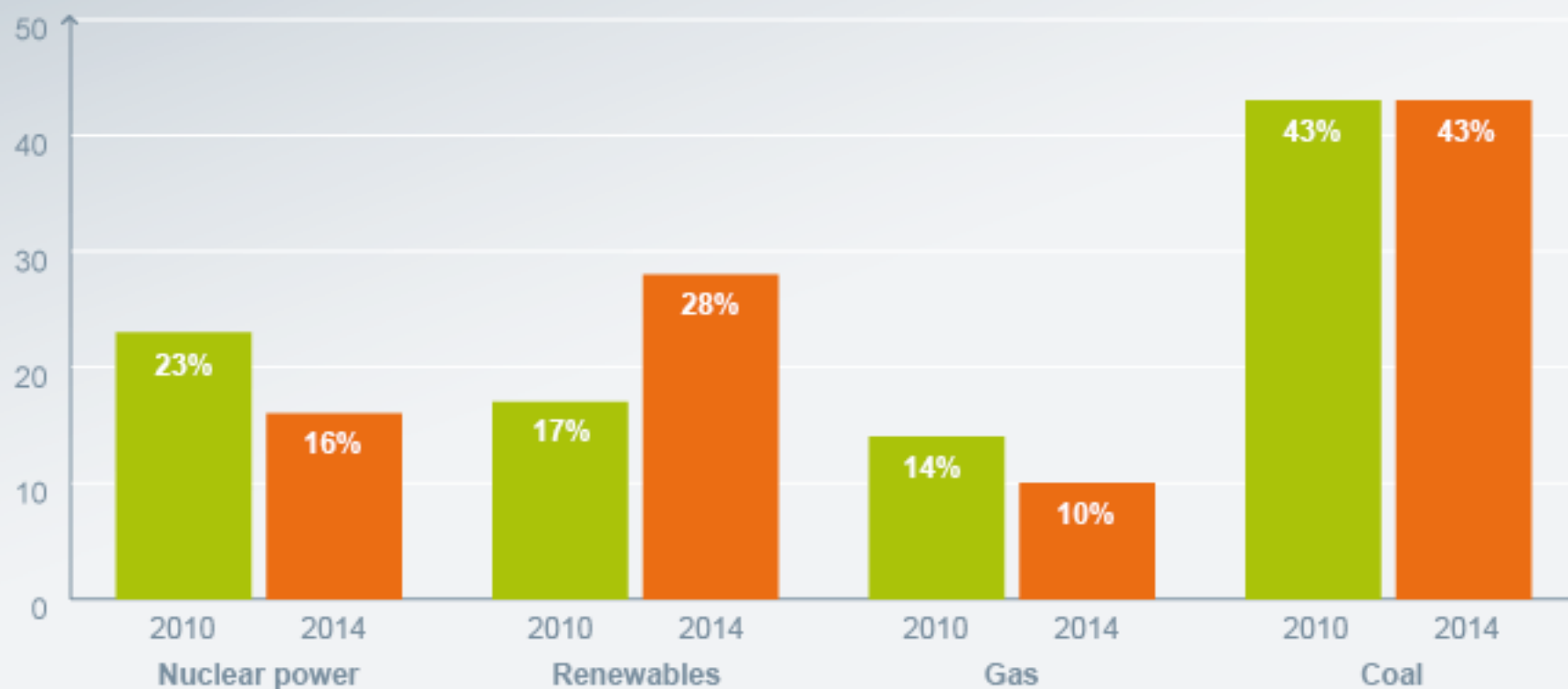
Data: UBA 2017.



*First estimates by UBA
Without emissions from land use, land-use change and forestry (LULUCF)

Germany's energy mix

2010 versus 2014



Source: ag-energiebilanzen.de

© DW

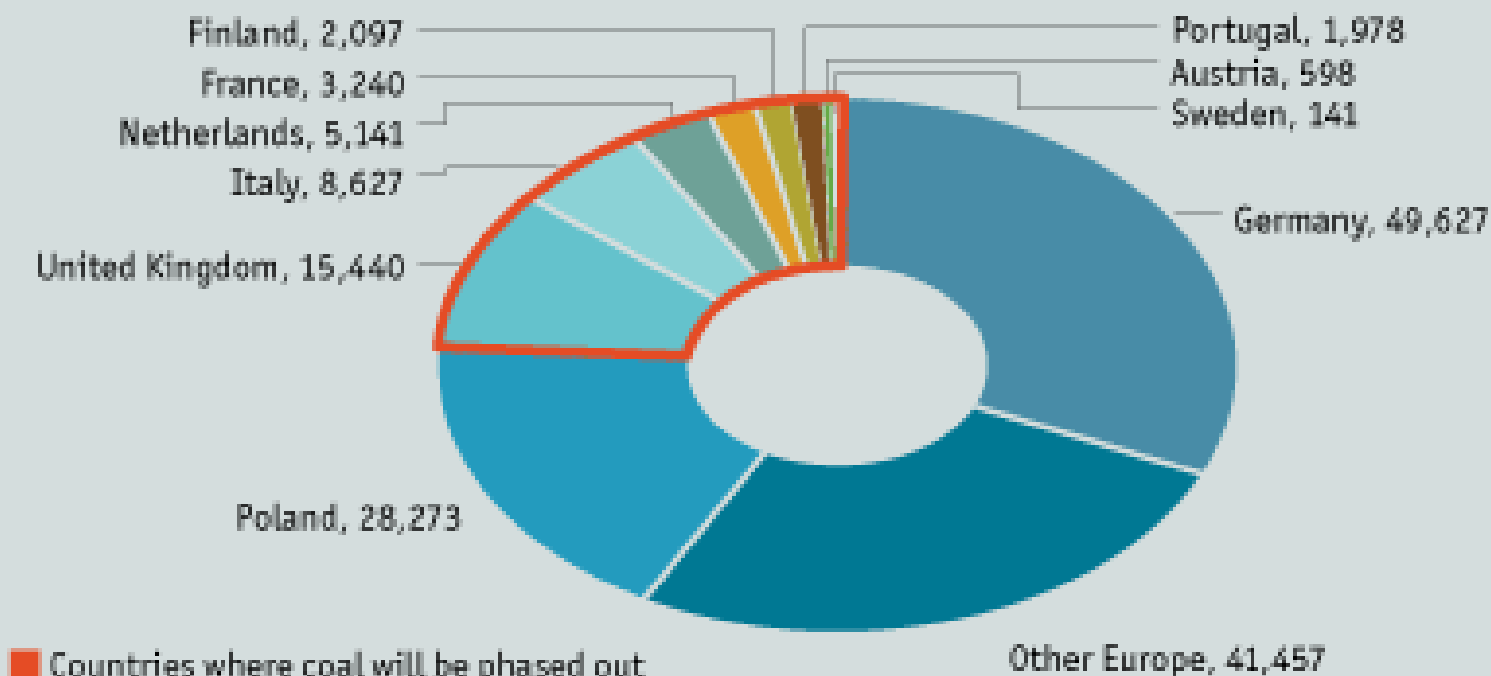
20 Countries

Powering Past Coal Alliance

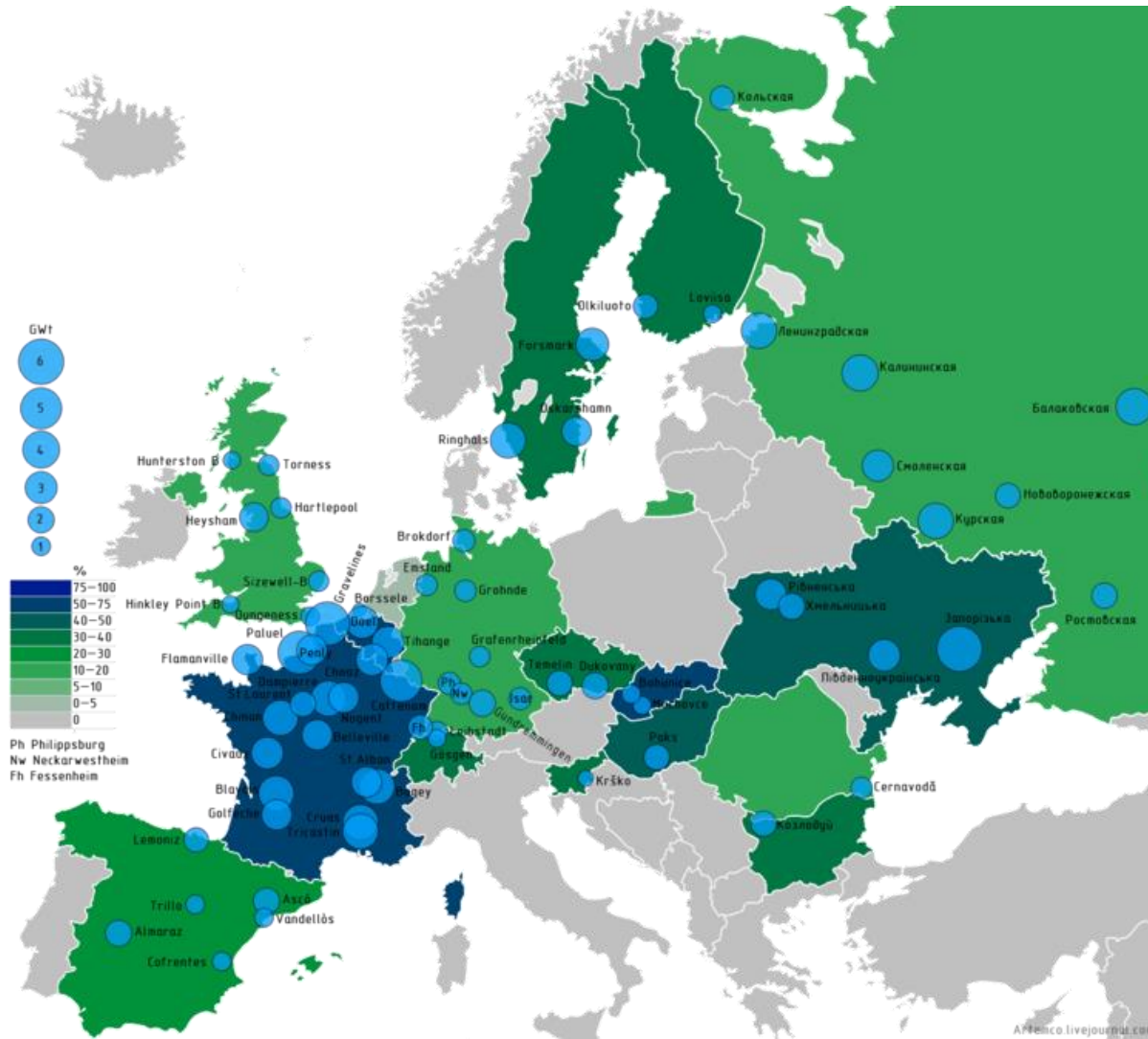
- Angola, Austria, Belgium, UK, Canada, Costa Rica, Denmark, El Salvador, Fiji, Finland, France, Italy, Luxemburg, Marshall Islands, Mexico, Netherlands, New Zealand, Niue, Portugal, Switzerland
- Target Year: 2030



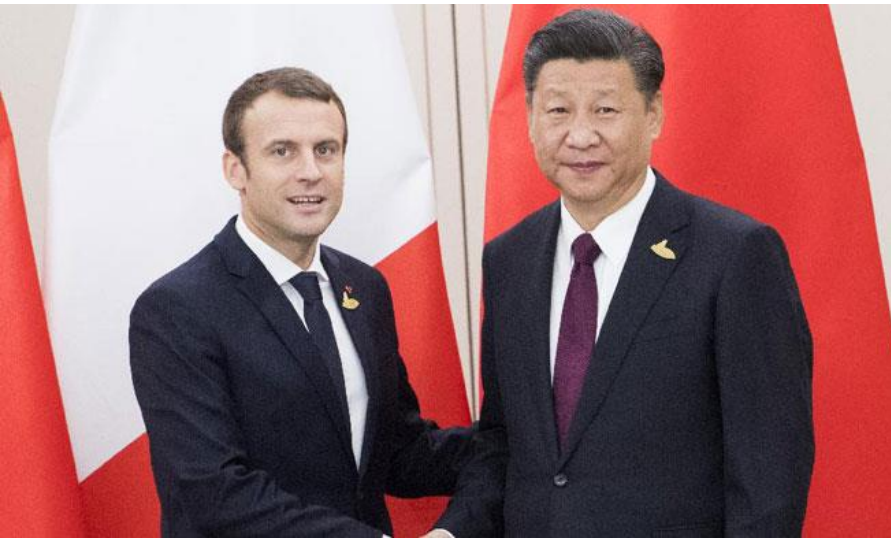
Coal phase out: One quarter of EU coal capacity will be retired by 2030 (capacity MW)



Source: Europe Beyond Coal Database.

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Partnering with China on Climate





Covenant of Mayors

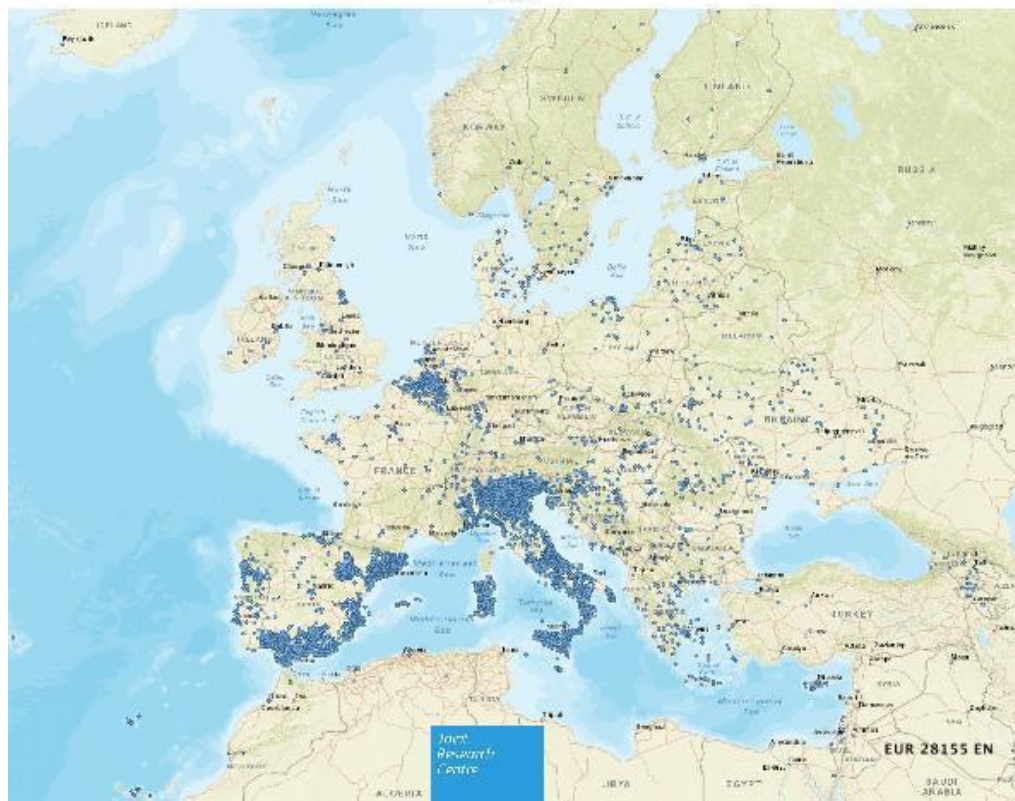
Committed to local
sustainable energy



JRC SCIENCE FOR POLICY REPORT

Covenant of Mayors: Greenhouse Gas Emissions Achievements and Projections

Albana Kona, Giulia Melica, Brigitte Koffi, Andreea Iancu,
Paolo Zancanella, Silvia Rivas Calvete, Paolo Bertoldi,
Greet Janssens-Maenhout, Fabio Monforti-Ferrario
2016





COP24

in Katowice, 2018.