Big Data Project

Will EU achieves its goals of CO2 reduction by 2030?

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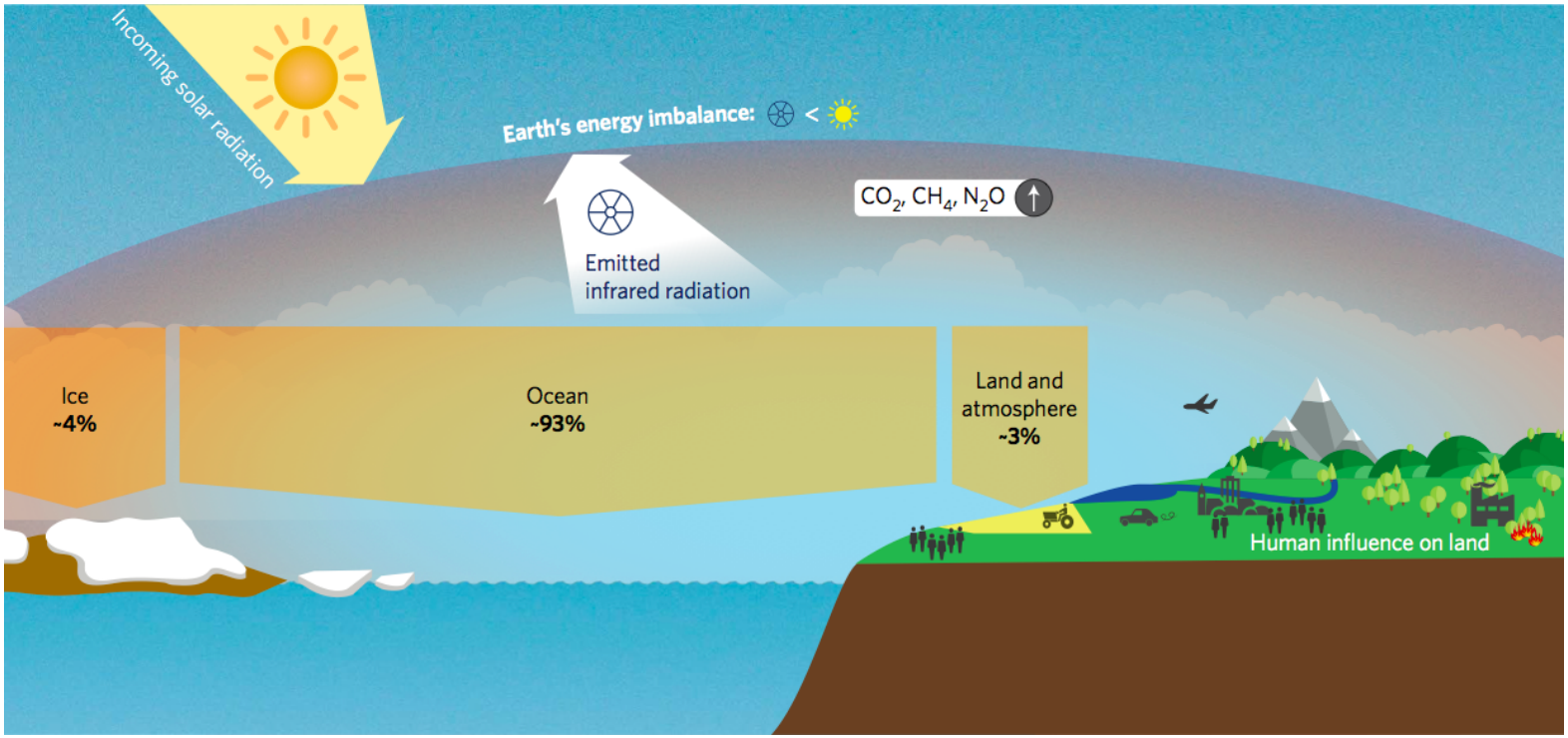
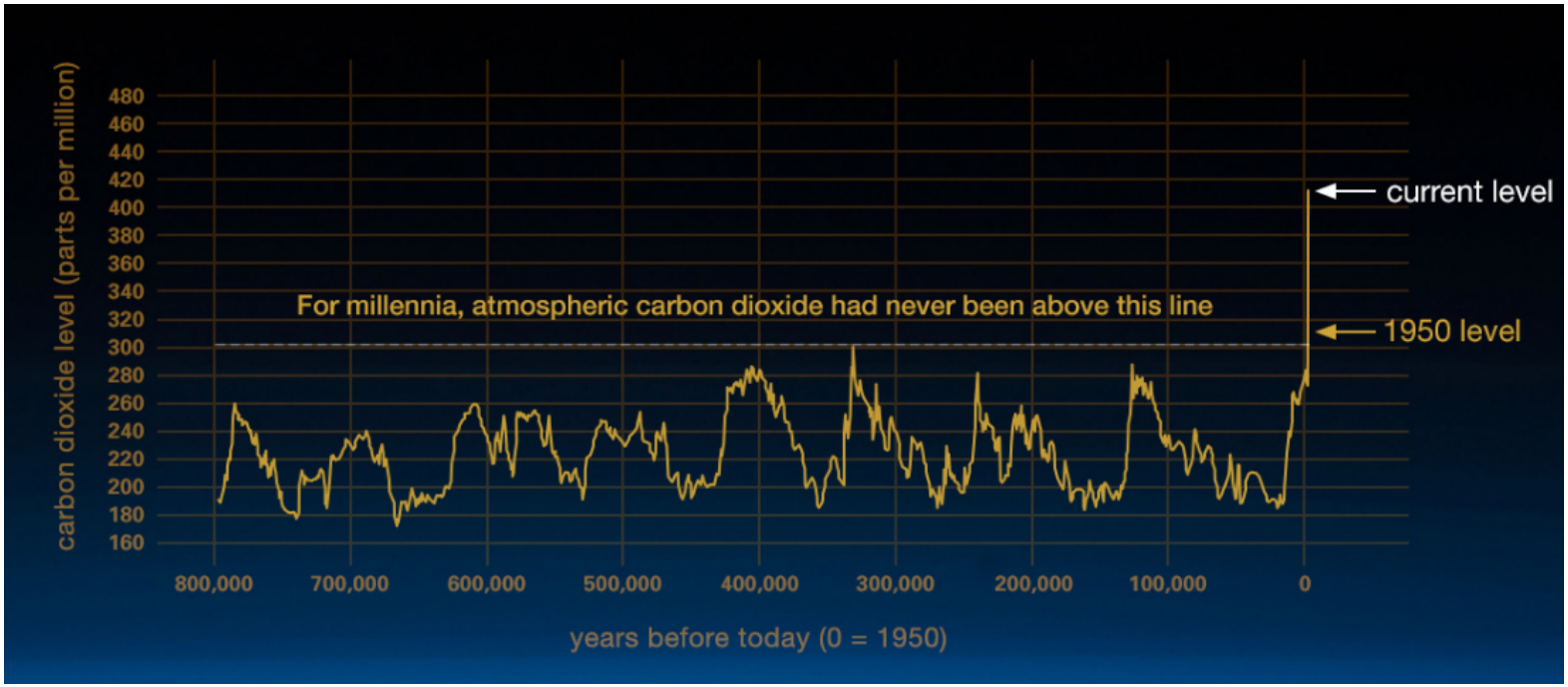
Earth's system energy imbalance



http://www.climate-lab-book.ac.uk/2016/earths-energy-imbalance/

Raising GHG concentrations



Leads to uncertainties!

https://climate.nasa.gov/evidence/

non-CO_2 GHG and CO_2 emissions

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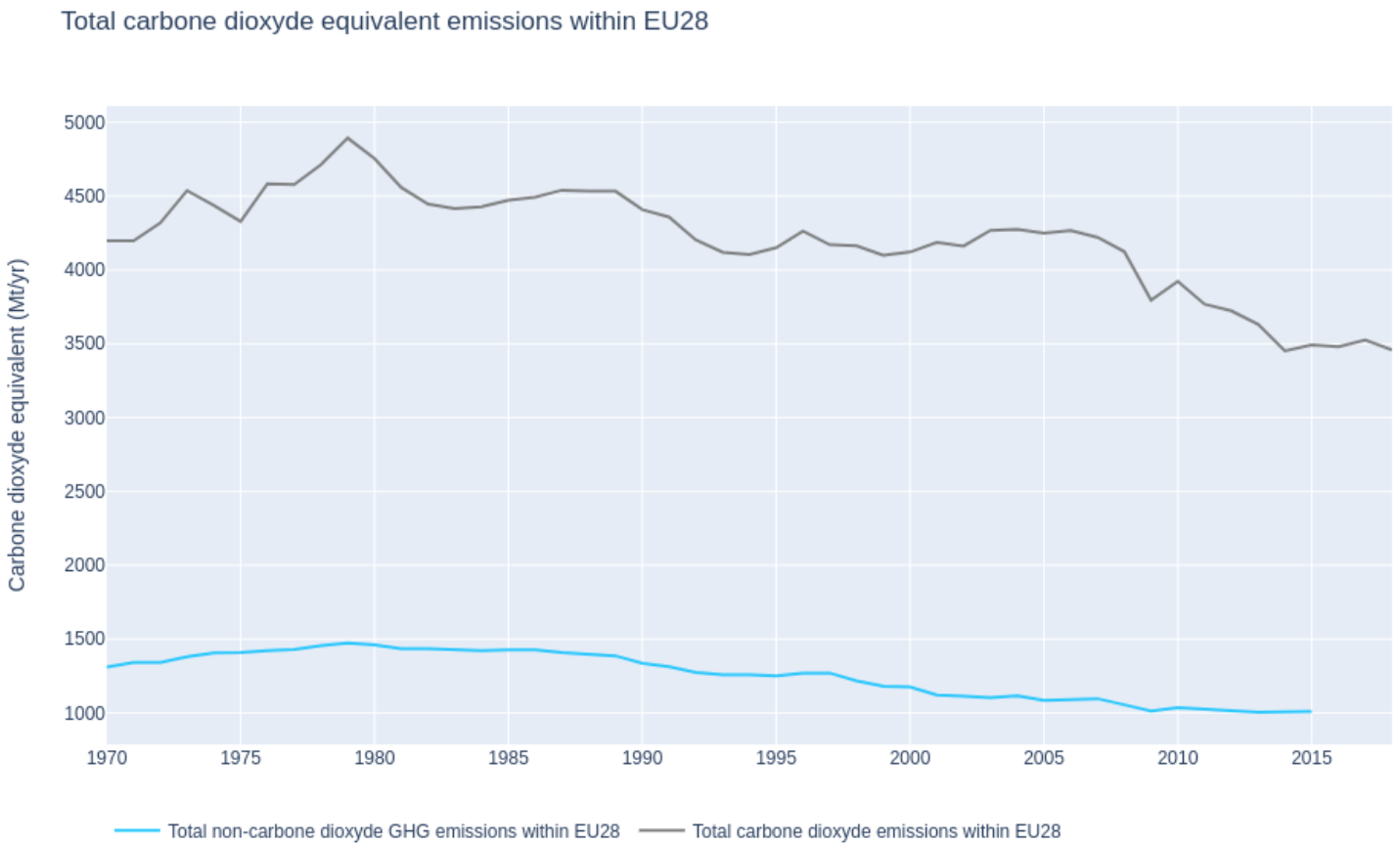
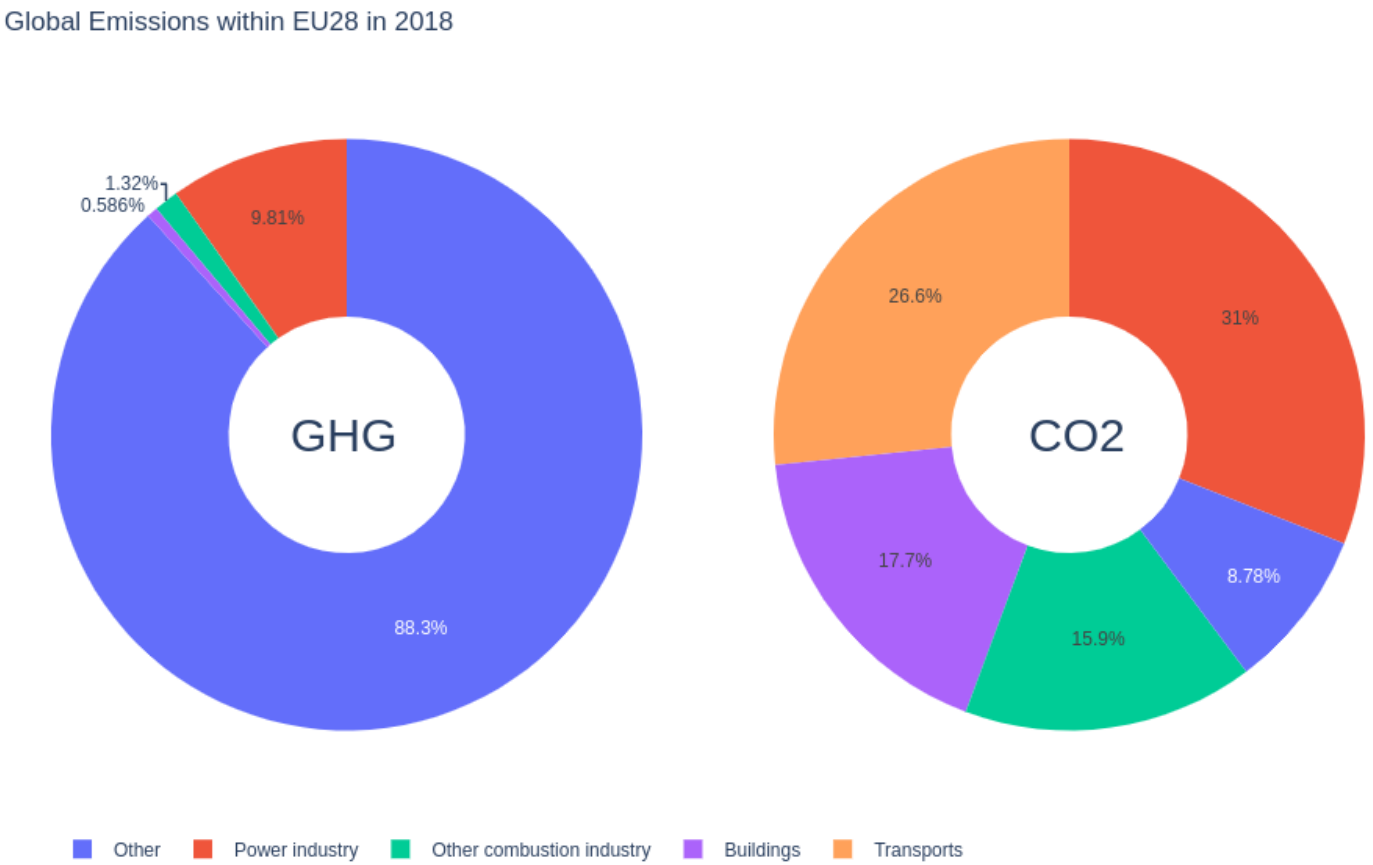


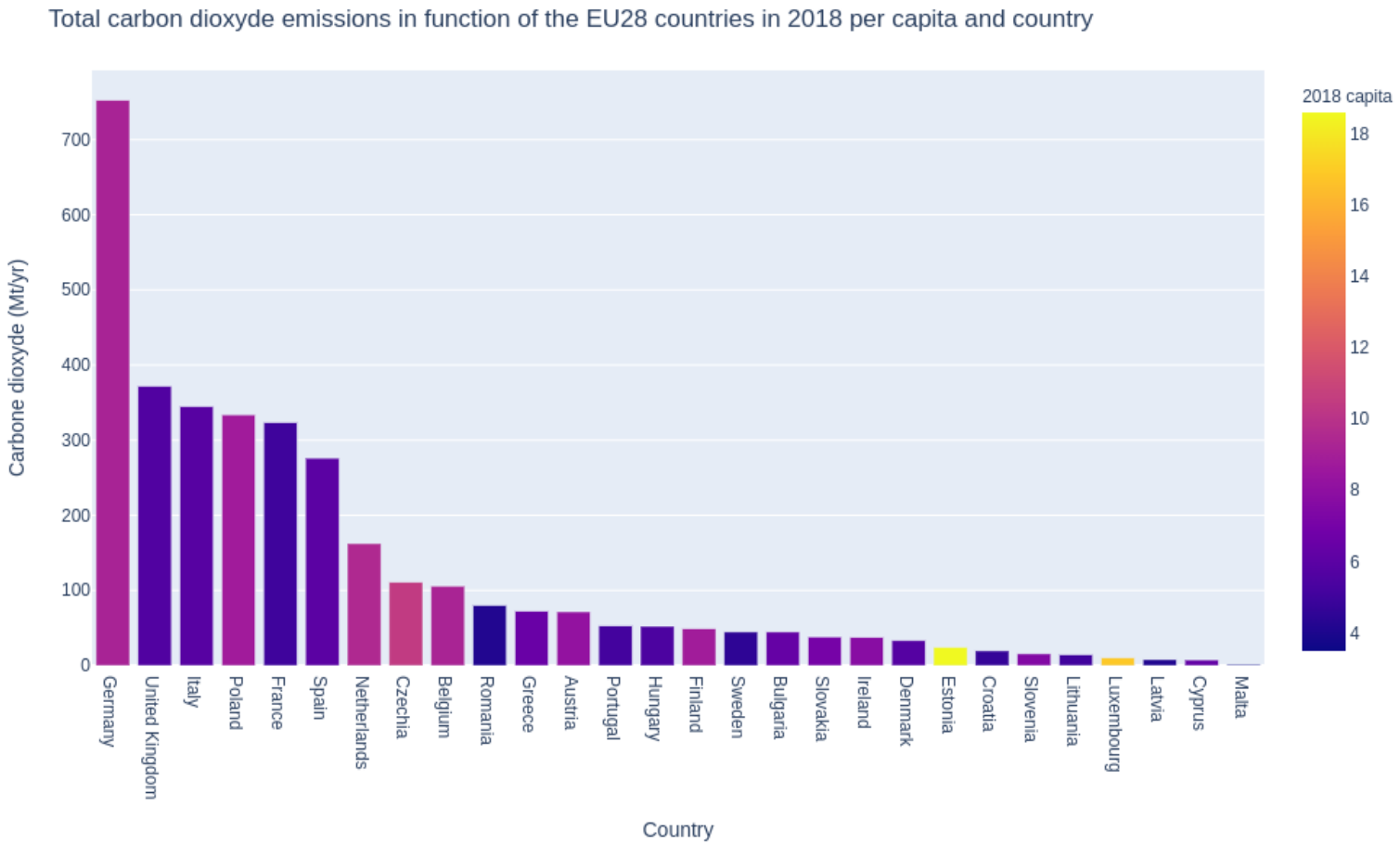
- CO_2 equivalent.
- 77,6% of GHG emissions are CO_2.

Activity sectors



- Other sector ?

CO2 emissions by country



- Ten first countries represent 81% of the total CO_2 European emissions.

EU policies to reduce CO2 emissions

2008 convention goals for 2020:

- 20 % cut in greenhouse gas emissions (compared to 1990).
- 20 % of EU energy from renewable.
- 20 % improvement in energy efficiency.

As a result, a 22 % in greenhouse gases in 2017 compared to 1990 !

EU policies to reduce CO2 emissions

Goals for 2030 set by European Council in October 2014:

- 40 % cut in greenhouse gas emissions (compared to 1990).
- 32 % of EU energy from renewable.
- 32.5 % improvement in energy efficiency.

EU policies to reduce CO2 emissions

ETS sectors

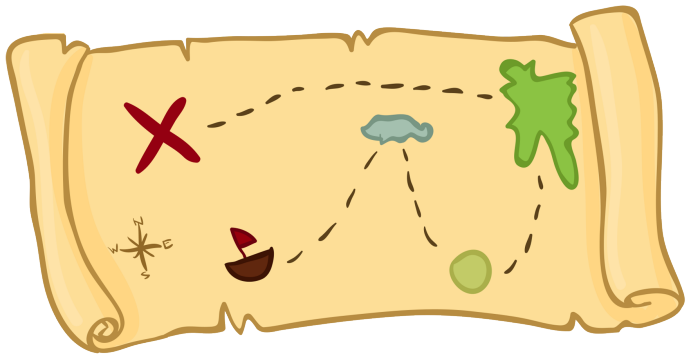
- Emission trading system composed of heavy energy-using sectors.
- Represents 45 % of EU's GHG emissions.
- Cut down emission by 43 %.

Non-ETS sectors

- Effort Sharing Decision represent 55 % of of EU's GHG emissions.
- National targets depends on the country's wealth.
- Cut down emission by 30 %.

Then, what's the plan?

- Trends of CO_2 emissions within EU ?
- How to compute CO_2 emissions ?
- Measure impacts of EU policies.
- Respond to the initial question.



How to compute CO_2 emissions ?

The Most Popular Methods

- Arima model
- Grey model
- Neural network
- Support vector machine