European context and requirements in energy policies

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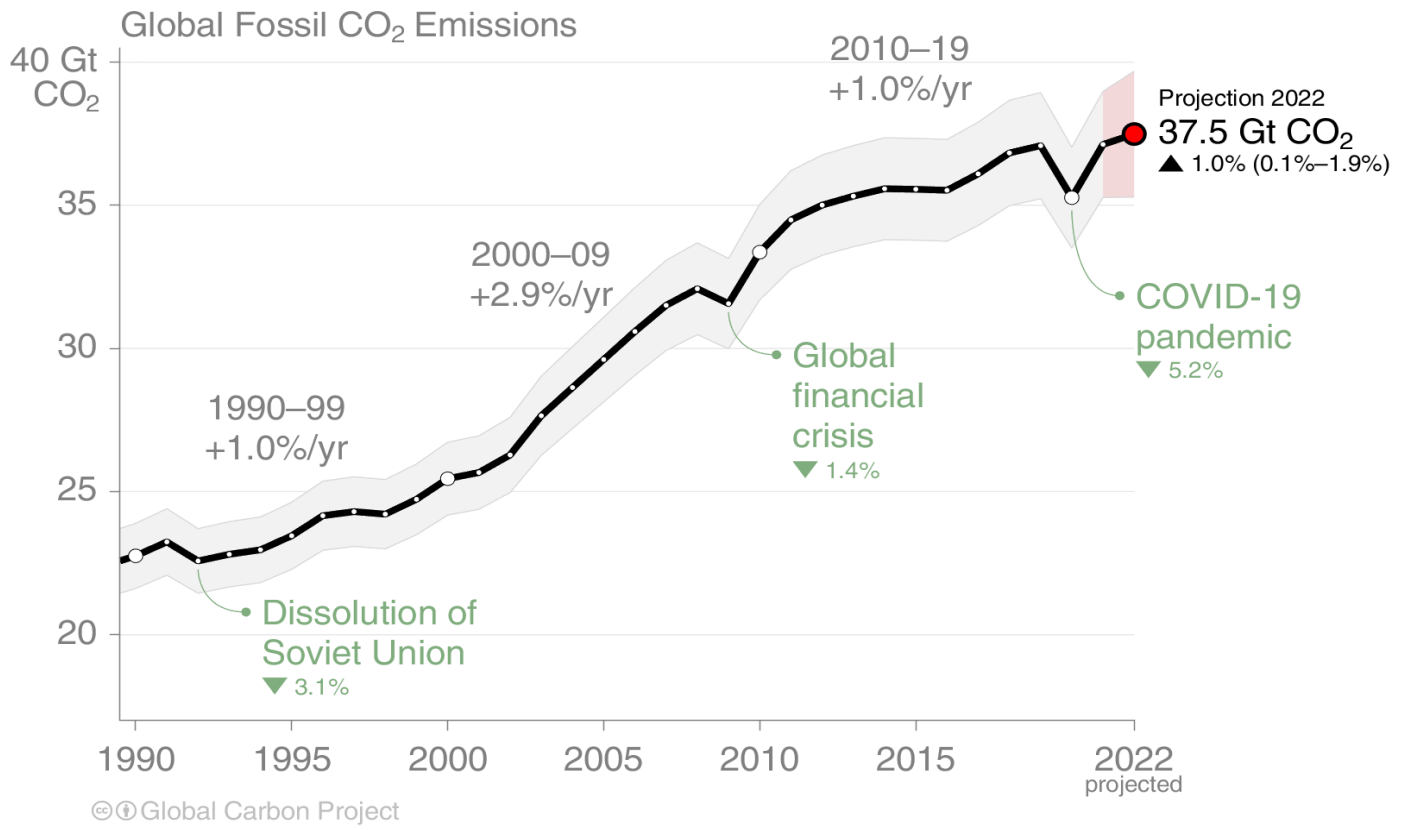
INTERNATIONAL CONTEXT

- Global fossil CO_2 emissions

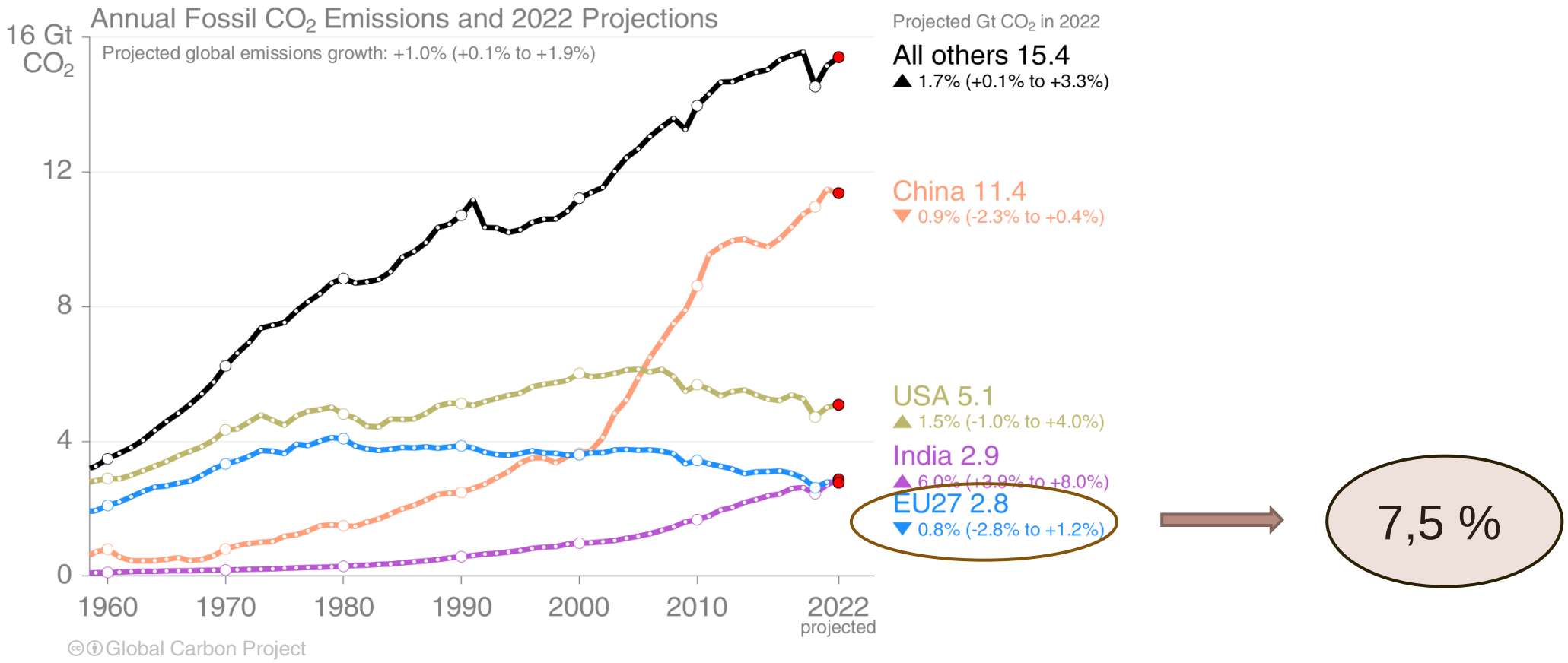


Source: https://globalcarbonbudget.org

1 Gigatonne (Gt) = 1 billion tonnes

INTERNATIONAL CONTEXT

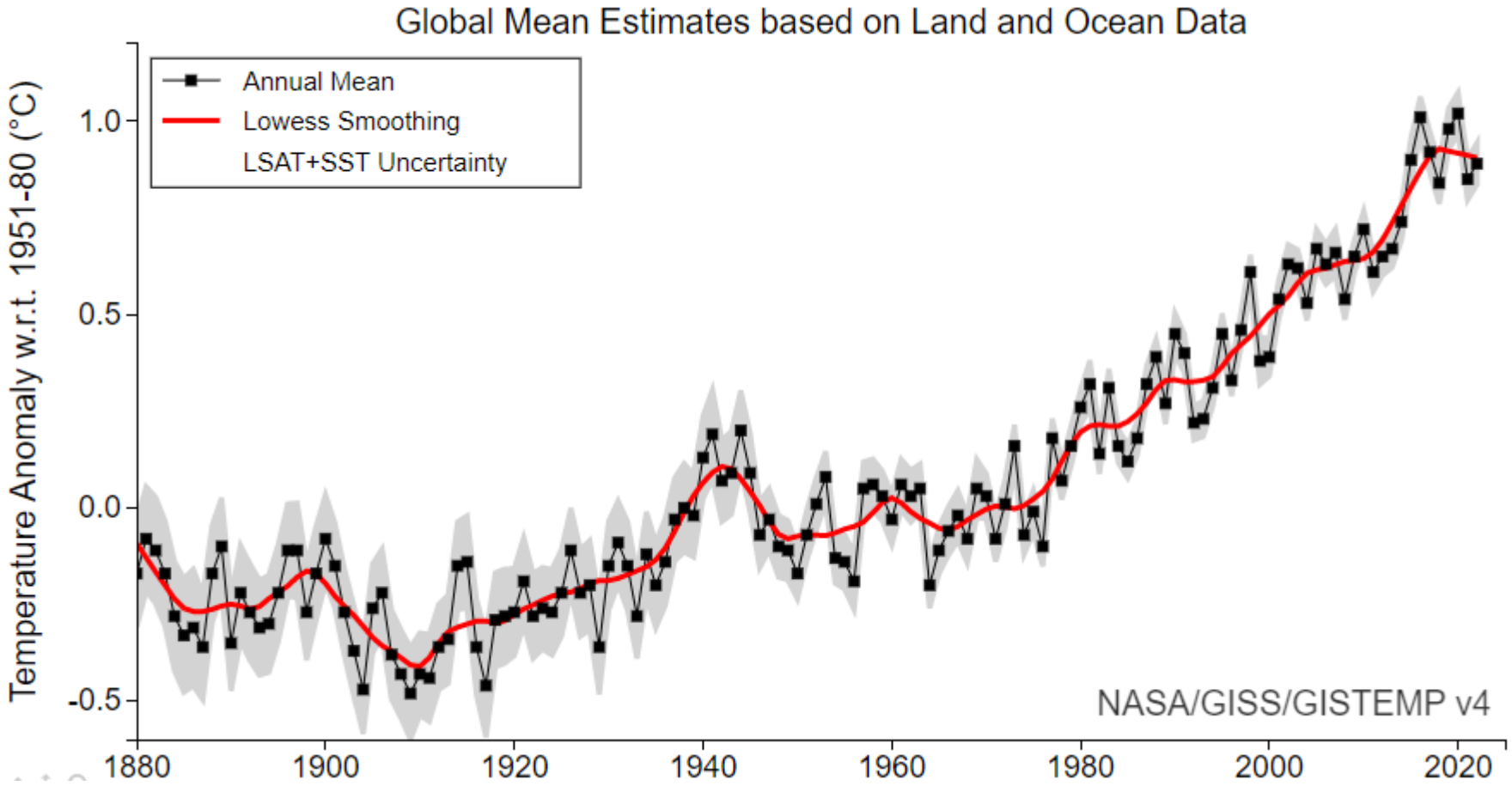
- Global fossil CO_2 emissions: Europe´s contribution



Source: https://globalcarbonbudget.org

INTERNATIONAL CONTEXT

- Global mean temperature increase



Source: https://data.giss.nasa.gov

INTERNATIONAL CONTEXT

Background

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF_6)

1992: Kyoto protocol

- Objective: to reduce at least 5% global GHG emissions by 2012 with regard to those in 1990.
- Signed by 84 countries, in 1997.

2008-2012: 1st period of Kyoto protocol

2013-2020: 2nd period of Kyoto protocol: Doha amendment

2015: Paris Agreement:

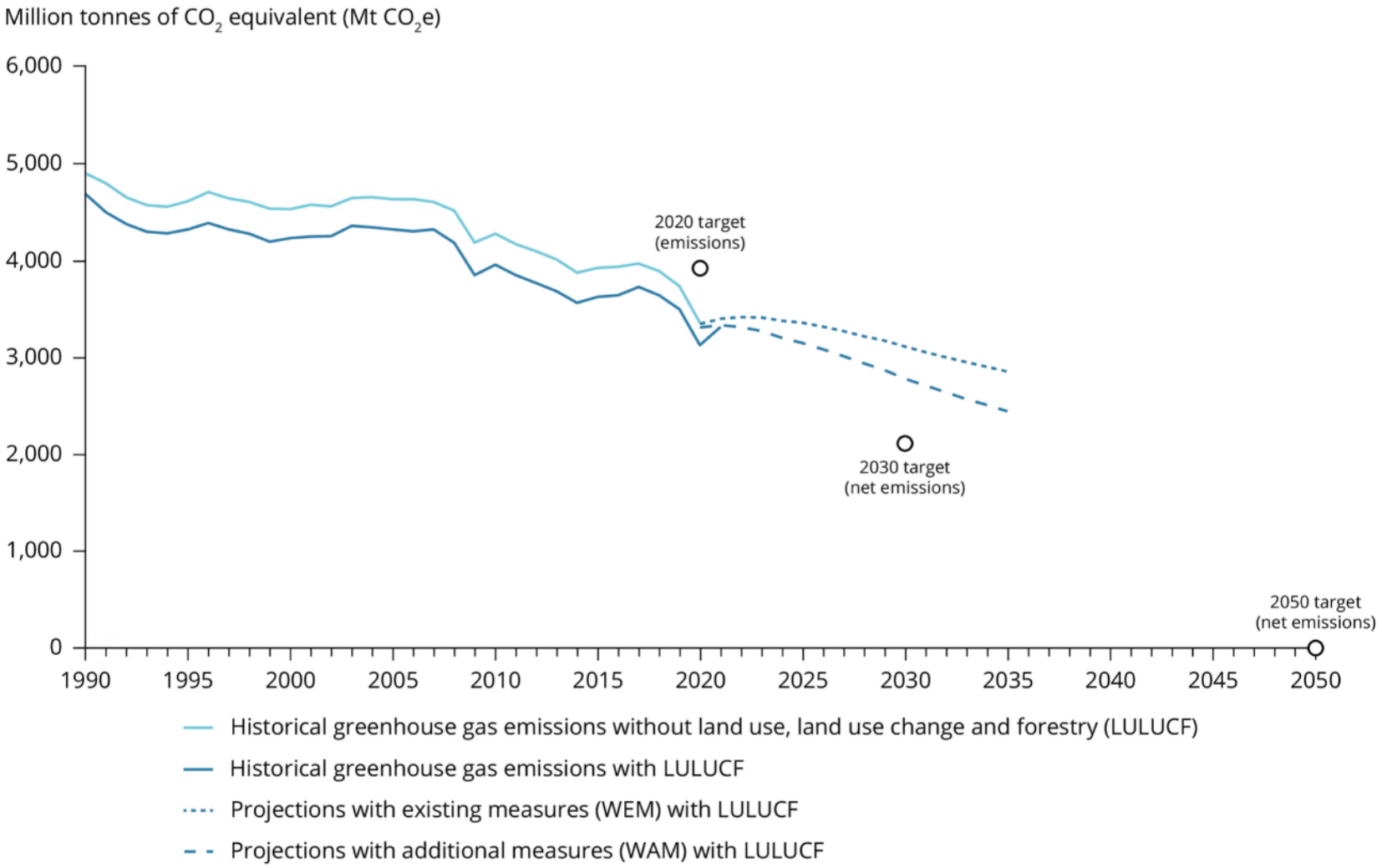
- To fight Climate Change from 2020 onwards.
- Objective: to keep the average increase of temperature well below 2ºC, if posible below 1,5 ºC
- It entered into force in 2016.
- The EU and 194 states, totalling over 98% of anthropogenic emissions, have ratified or acceded to the agreement.

EUROPEAN CONTEXT

- Europe´s targets:
  - ✓ 8 % GHG emission reduction by 2012, with regard to those in 1990 (11,8%)
  - ✓ 20 % GHG emission reduction by 2020, with regard to those in 1990 (32 %)
  - 40 % GHG emission reduction by 2030, with regard to those in 1990

- How? Adoption of specific and ambitious measures
  - ETS: European Trading System (≈ 40 % european GHG)
    - **Energy Intensive industries**, electricity production and aviation
    - Directive 2003/87/EC and Directive 2009/29/EC
      - Phase I: 2005-2007
      - Phase II: 2008-2012
      - Phase III: 2013-2020
      - Phase IV: 2021-2030

EUROPEAN CONTEXT



Source: https://www.eea.europa.eu/ims/total-greenhouse-gas-emission-trends

EUROPEAN CONTEXT

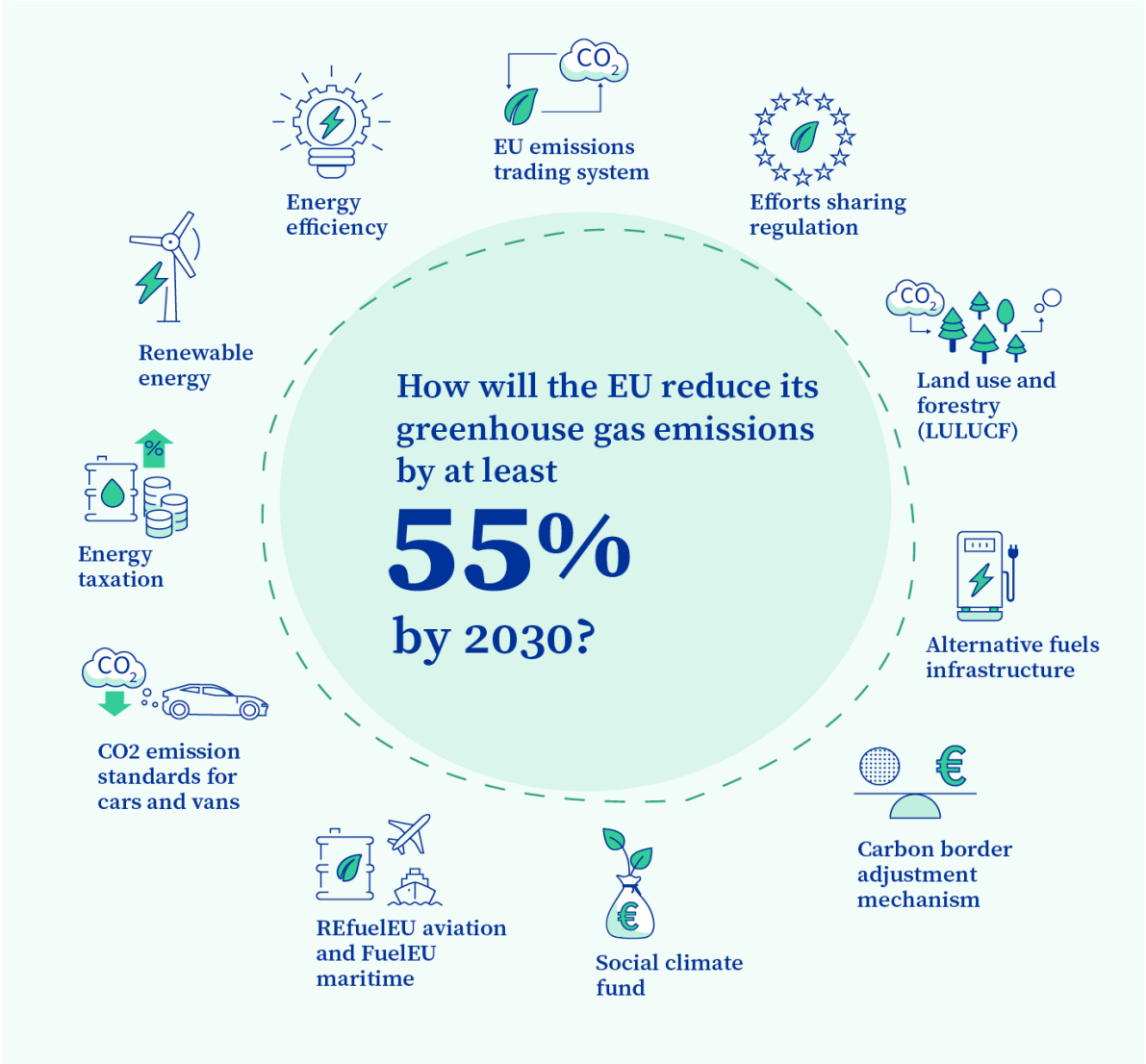
- European Green Deal (2019)
  - 55% GHG emissions reduction by 2030
  - Net zero emissions by 2050

FIRST CARBON NEUTRAL CONTINENT

- European Climate Law and Fit for 55 (2021)

EUROPEAN CONTEXT

- Fit for 55: how to turn climate goals into law

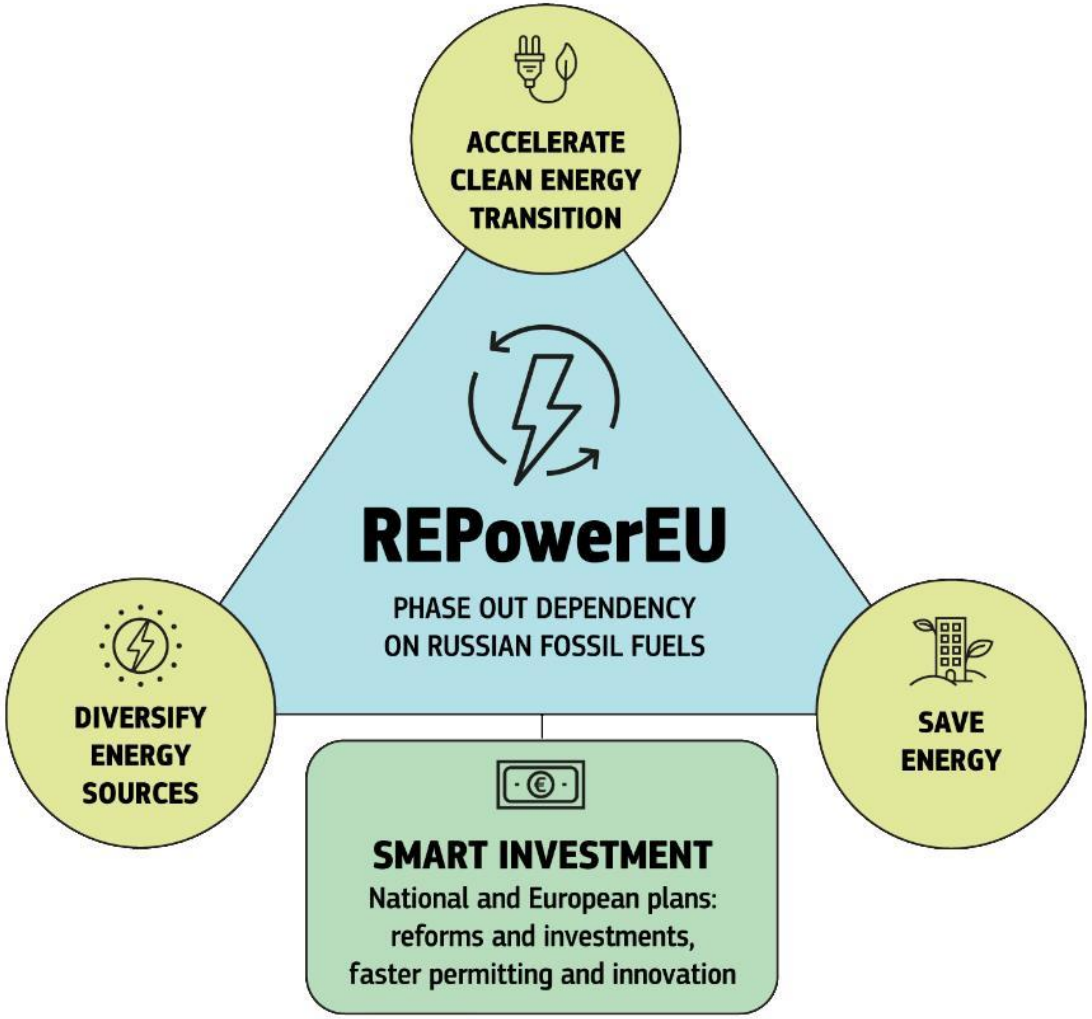


https://www.consilium.europa.eu/

EUROPEAN CONTEXT

https://www.bbc.com/news/world-europe-65075952

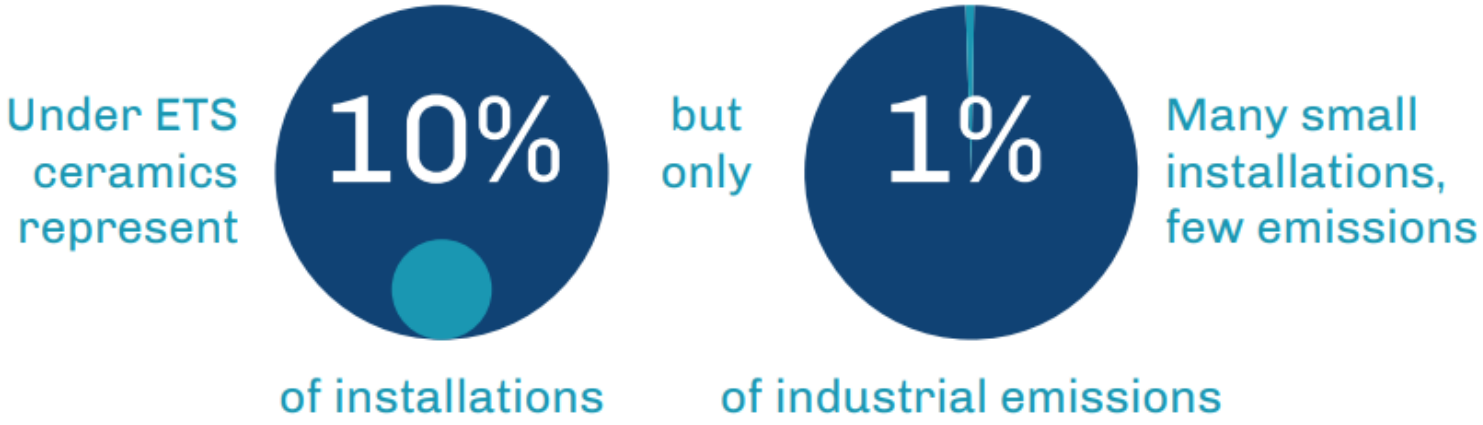
https://theconversation.com/la-dependencia-energetica-el-talon-de-aquiles-de-europa-177262



https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0230&from=EN

EUROPEAN CONTEXT: Ceramic industry

- European ceramic industry:
  - It is an Energy Intensive Industry: it is under ETS rules
  - It enables energy savings in other sectors
  - It is committed to climate neutrality

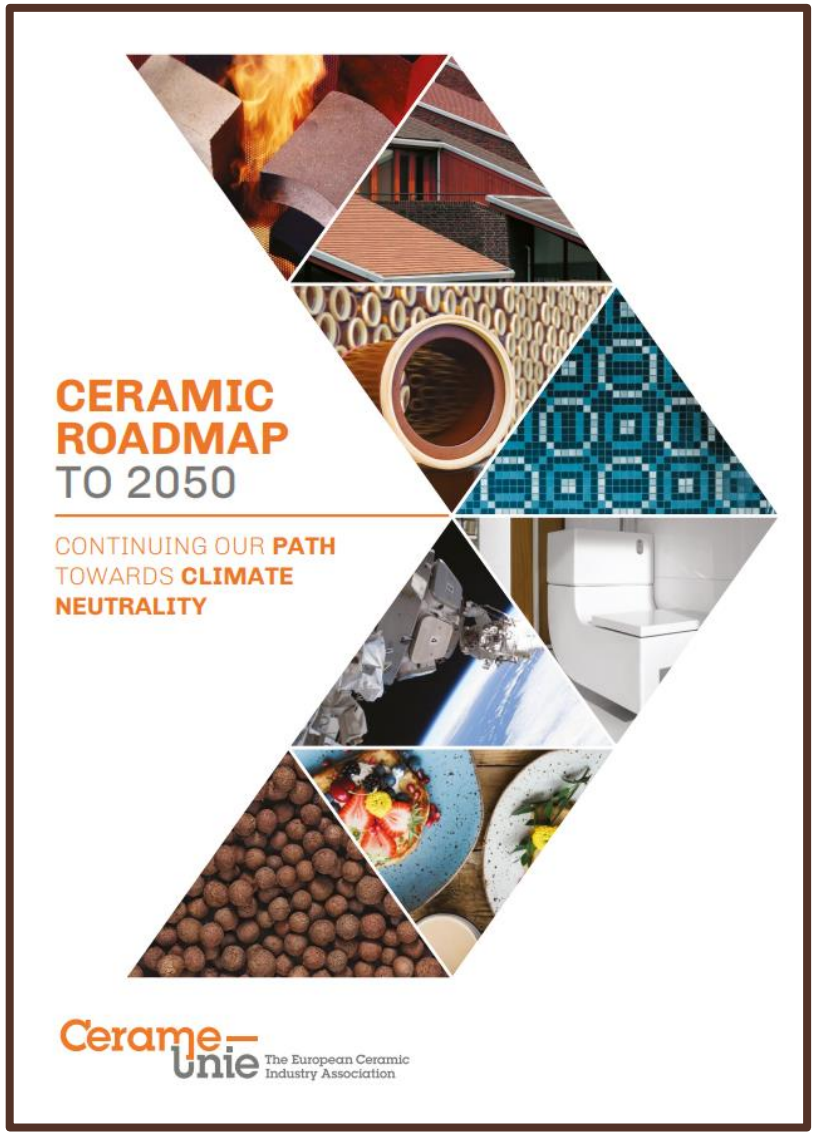


https://cerameunie.eu/media/zyqdwwwp/ceramic-roadmap-to-2050.pdf/

EUROPEAN CONTEXT: Ceramic industry

- European ceramic industry:
  - Over the last decades energy consumption and CO_2 emissions has been reduced significantly.
  - Best Available Technologies are widespread.
  - CO_2 emission reduction targets can only be reached with new technologies.

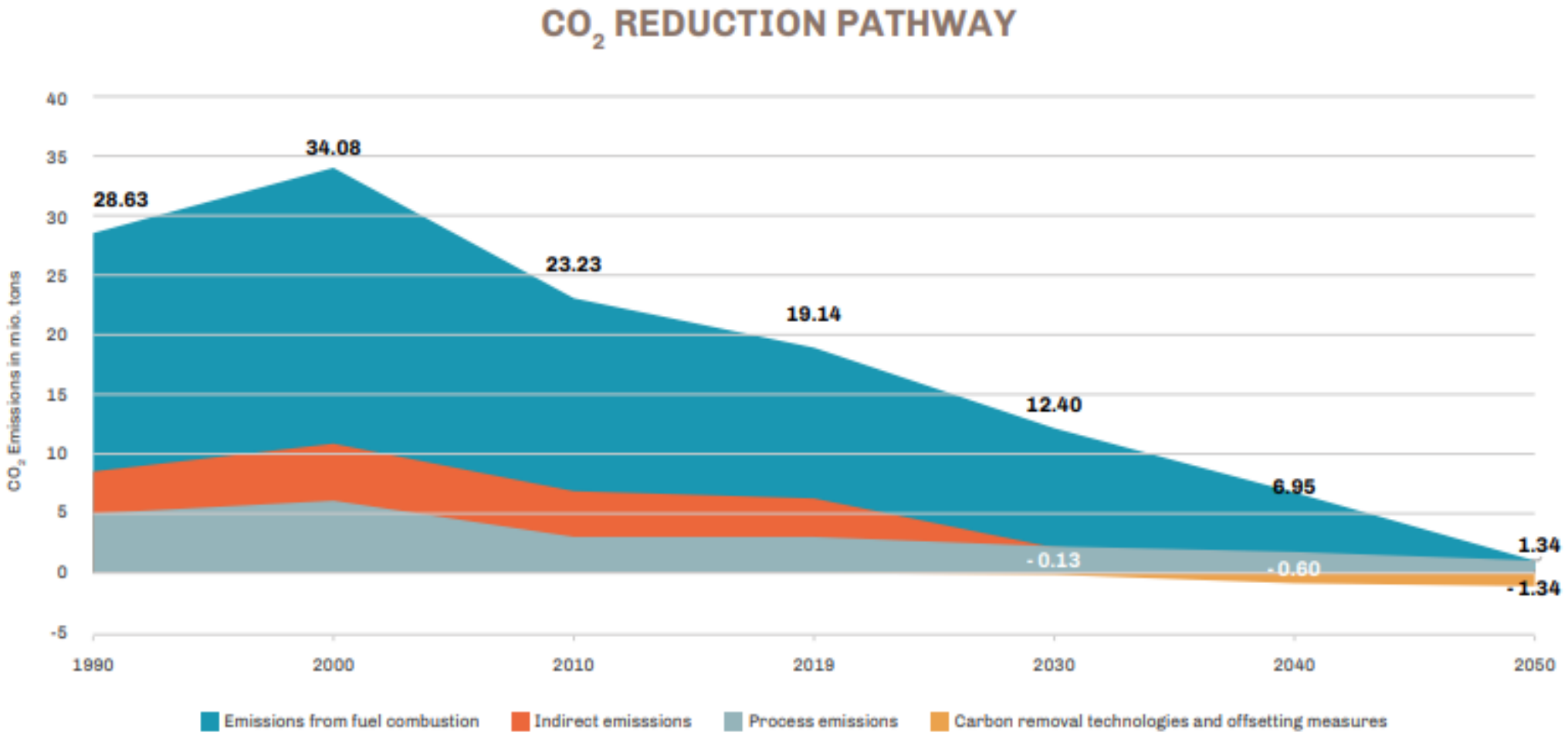
CERAMIC ROADMAP TO 2050



https://cerameunie.eu/media/zyqdwwwp/ceramic-roadmap-to-2050.pdf/

EUROPEAN CONTEXT: Ceramic industry

- Emissions reduction model, considering several measures:



https://cerameunie.eu/media/zyqdwwwp/ceramic-roadmap-to-2050.pdf/

EUROPEAN CONTEXT: Ceramic industry

- Emissions reduction model, considering several measures:

Emissions from fuel combustion	Emissions from process
➢ **Switch to Renewable Energy** • Biogas/syngas/biomass/biomethane ➢ **Green hydrogen** ➢ **Electrification** ➢ **Spread Best Available Technologies to reduce energy demand and increase energy efficiency** • Use recycled material • Improved dryers and kilns • Improved thermal insulation • New coatings, refractories • Recovery of excess heat • Automated controls	❖ **Reduction of additives containing carbon** ❖ **Minimisation of carbon content in the clay mixes** ❖ **Use of less raw materials** ❖ **Carbon removal technologies and offsetting.**

https://cerameunie.eu/media/zyqdwwwp/ceramic-roadmap-to-2050.pdf/

Thank you for your attention!!!

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