IMPROVING ECONOMIC POLICY

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# European policy space and priorities for sustainable growth

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MACROECONOMICS OF SOCIO-ECOLOGICAL TRANSITION

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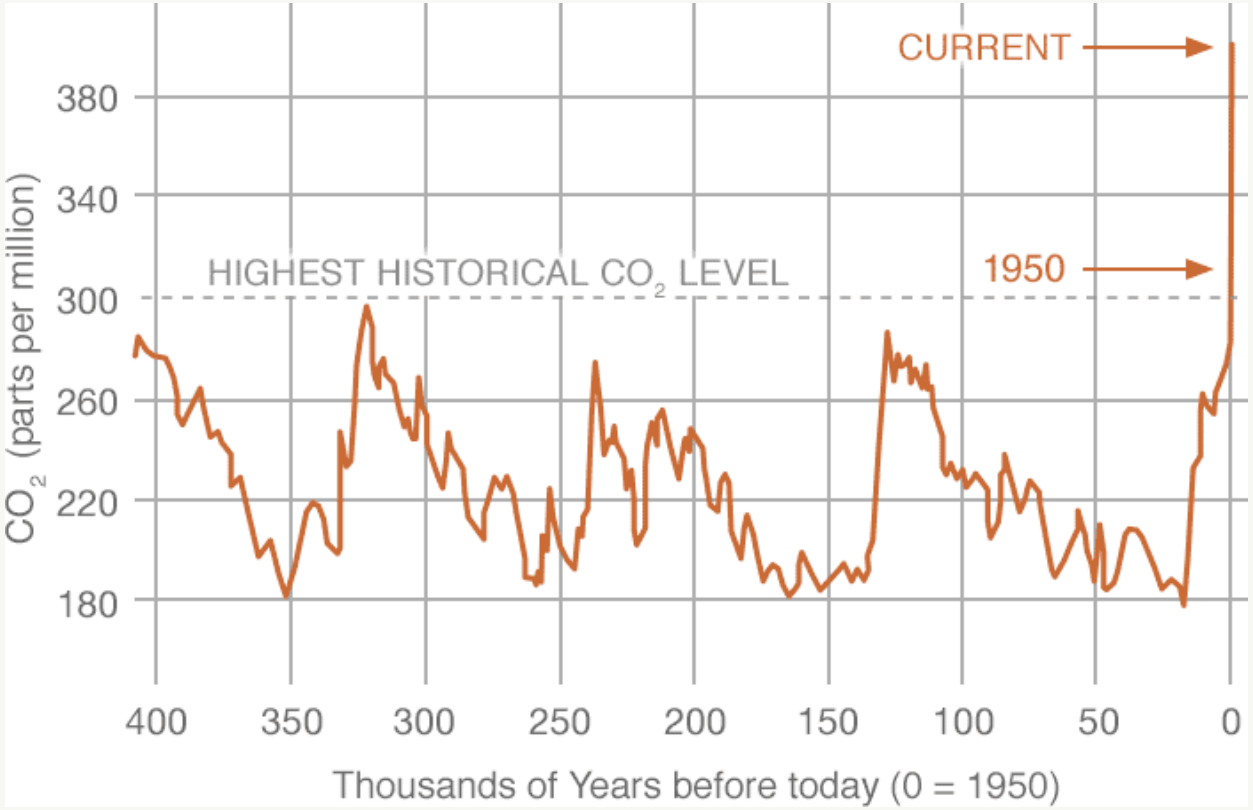
# Three aspects of sustainability

- Climate
- Society
- Public finances

# Climate change has potentially devastating consequences

**CO2 emissions in the past 400 thousands years**




Data source: Atmospheric Infrared Sounder (AIRS).
Credit: NASA

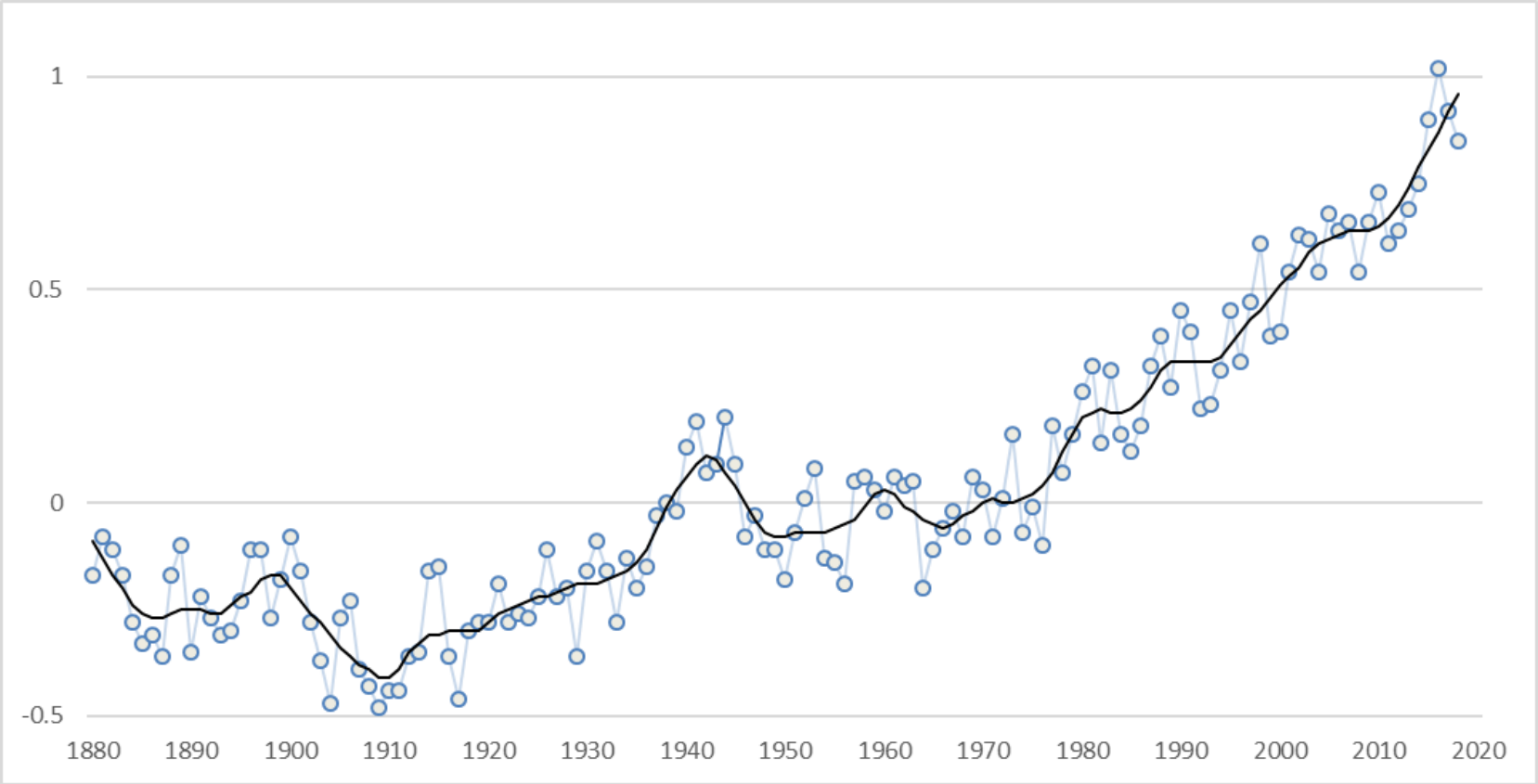
Climate change can trigger:

- Heat waves
- Draughts
- Floods
- Storms
- Sea-level rise
- …

- Food production
- Wildfires
- Water stress
- Productivity
- Fishery
- …

- Migration
- Health issues
- Famine
- Destroyed buildings
- …

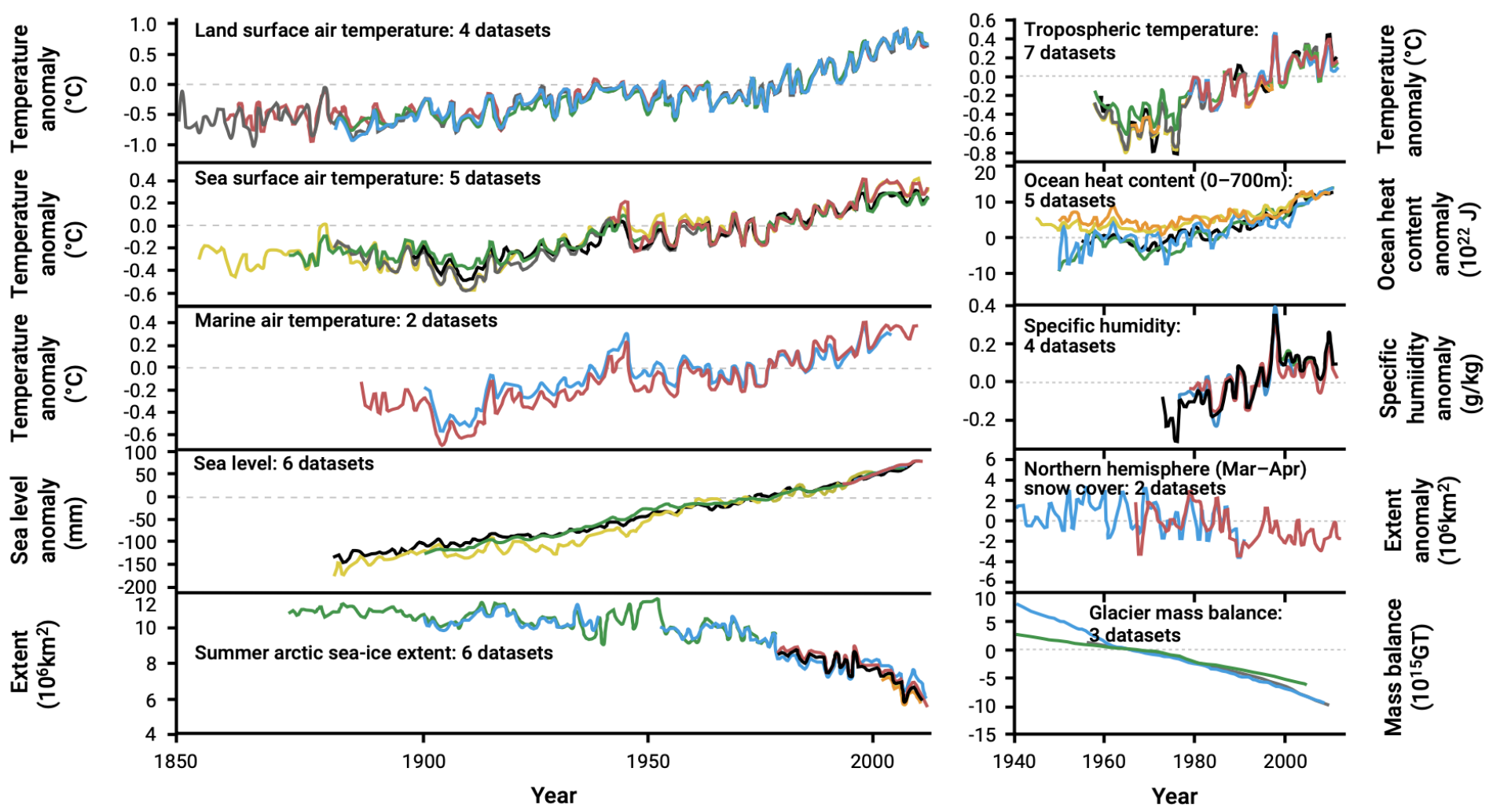
# Global temperature anomaly, 1880-2021 (Degree Celsius)




As a result of the unprecedented increase of heat-trapping CO2 concentration in the atmosphere, global average temperature has increased to date by approximately 1°C above pre-industrial levels.

Source: NASA.

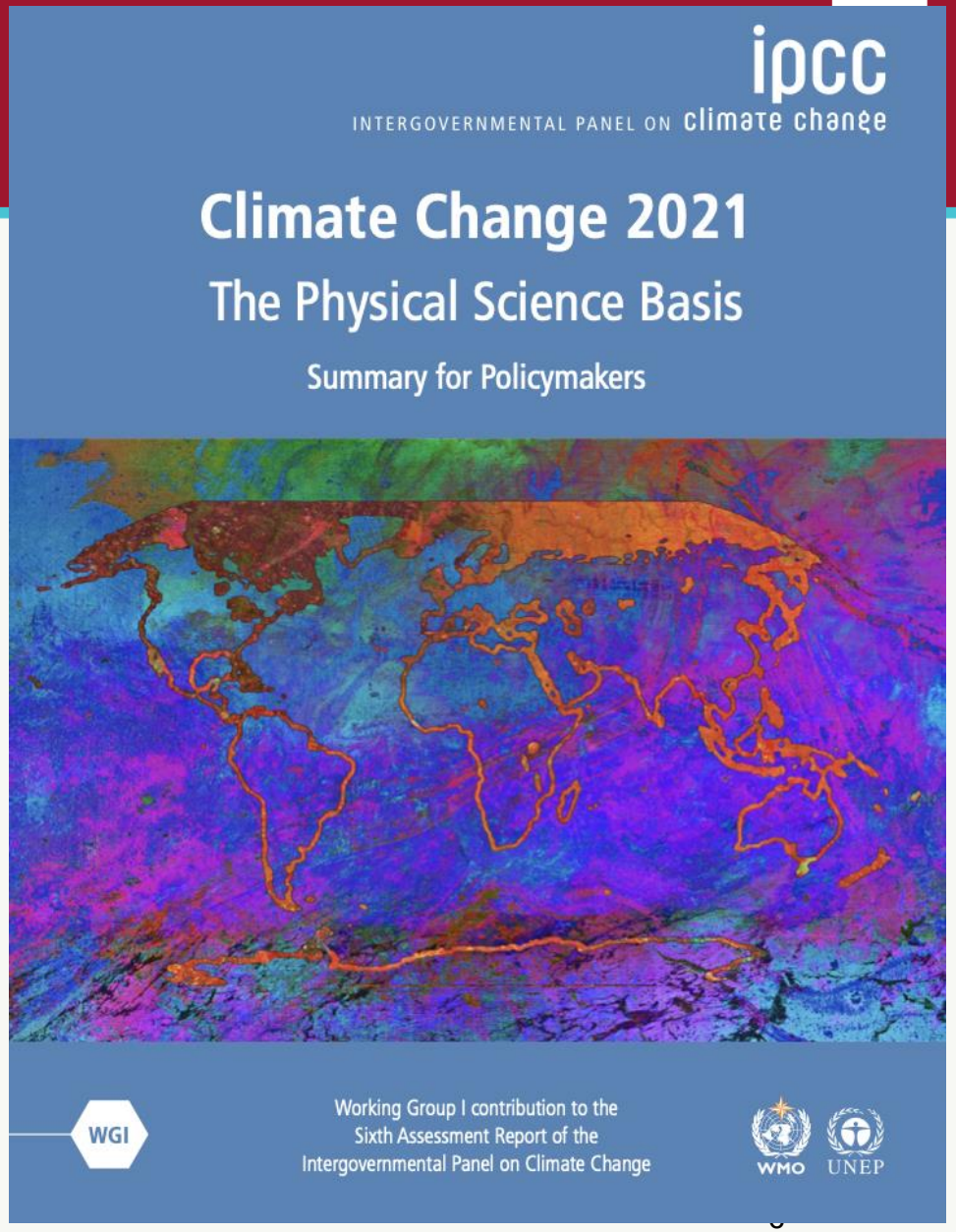
# Multiple independent indicators of a changing climate




Source: IPCC (Intergovernmental Panel on Climate Change, which is the United Nations body for assessing the science related to climate change https://www.ipcc.ch/ )

# New IPCC report sounds the alarm bell

- IPCC (Intergovernmental Panel on Climate Change) published on 9 August 2021 its most comprehensive and up-to-date report on global warming.
- Written by 200 scientists who rigorously evaluated more than 14,000 scientific papers on climate change and endorsed by government representatives from 195 countries.



# New IPCC report: sounds the alarm bell

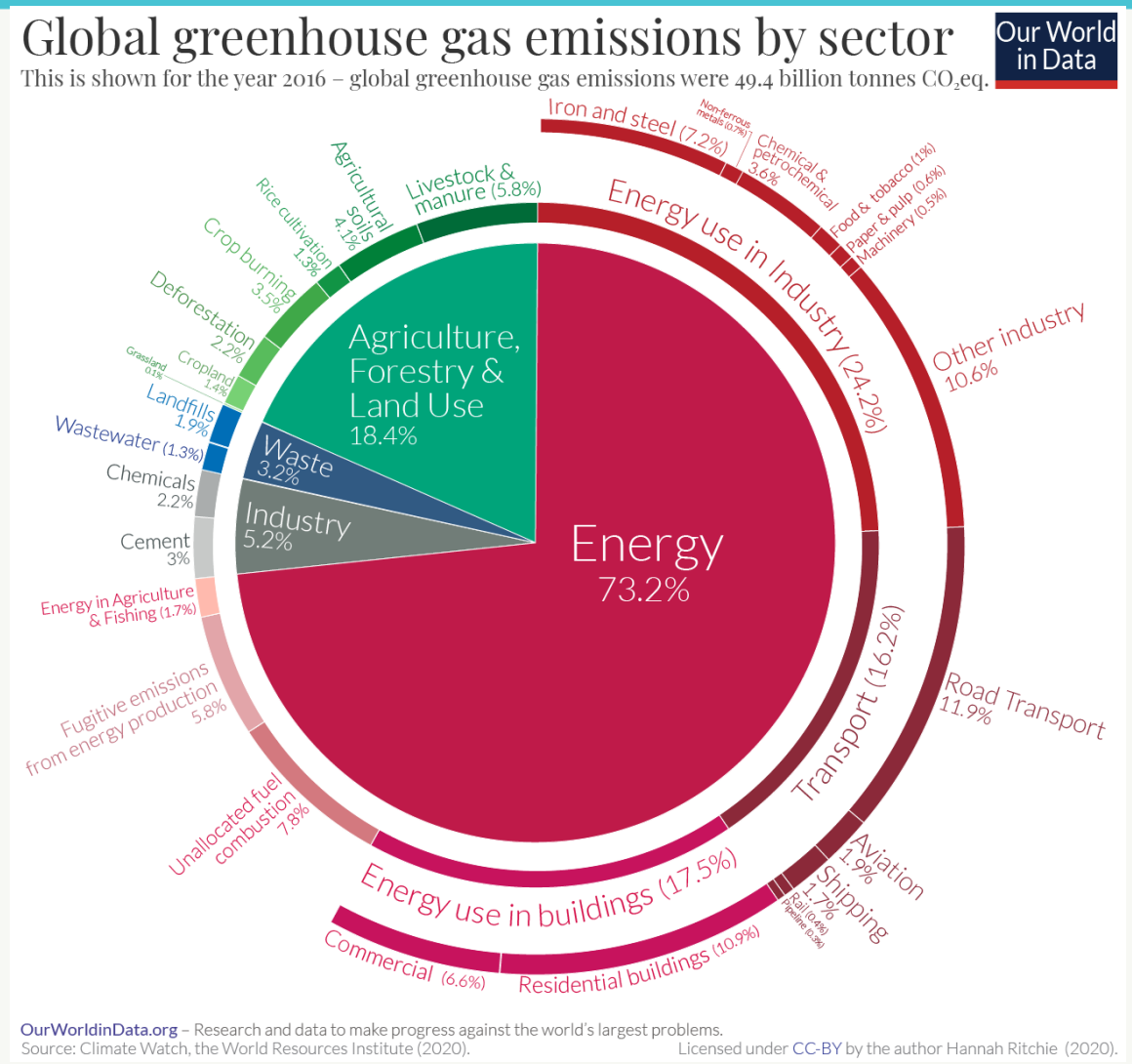
- Scientists expect the world to temporarily reach a level of warming of 1.5°C already by 2040, even in an optimistic scenario, leading to an increase in those extreme weather events that already characterize our time.
- If the world does not strengthen its climate action this decade but continues with current policies, the increase could be 2.0°C by 2060 and 2.7°C by the end of the century.
- The situation could even worsen if global warming triggers feedback loops capable of releasing even more climate-warming carbon emissions - such as melting Arctic permafrost or depleting global forests. Under these high-emissions scenarios, the Earth could reach temperatures 4.4°C above the pre-industrial average by 2081-2100.

# Mid-century GDP changes with different temperature rises and economic impact severity, relative to a no-climate change world

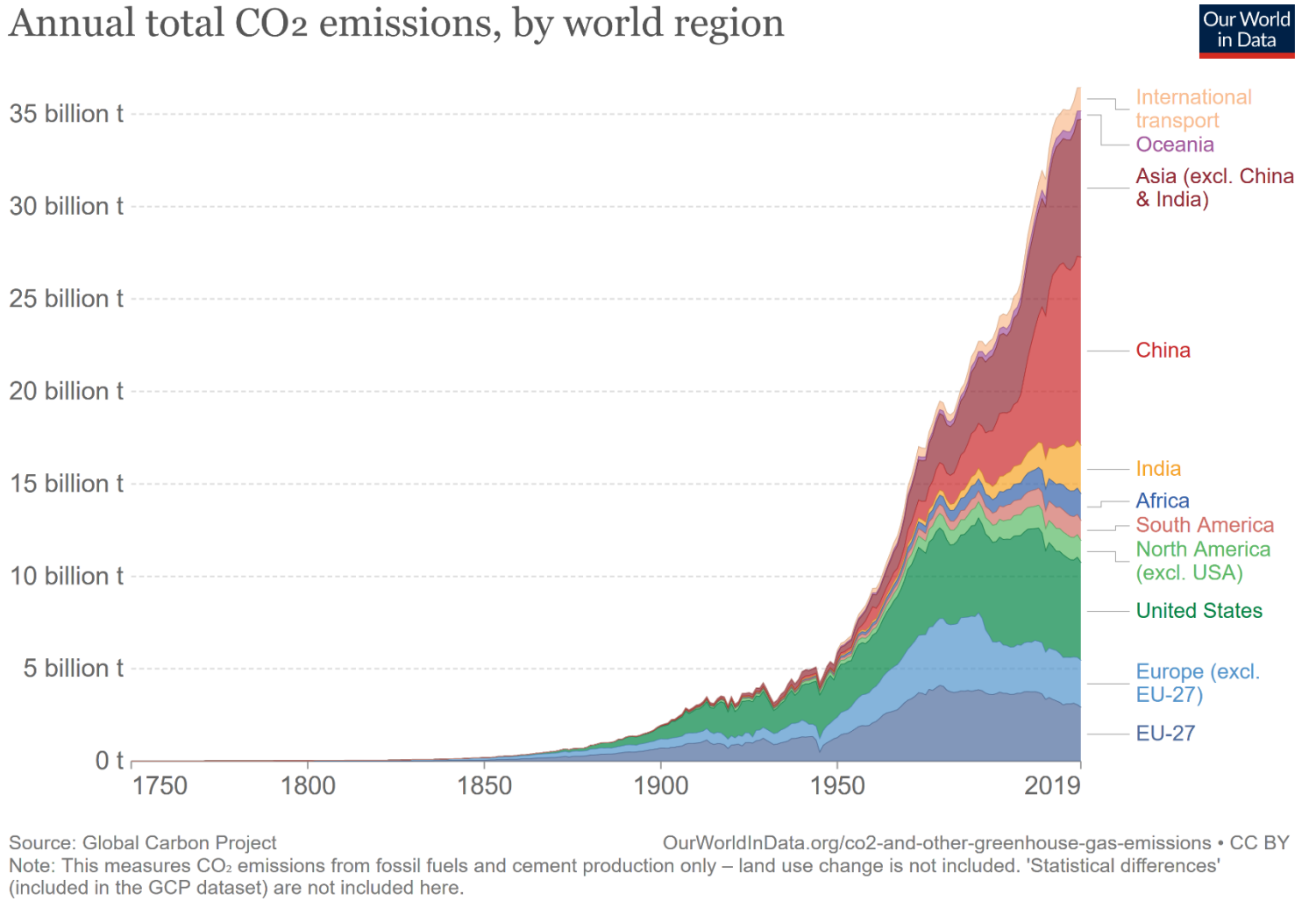
| | Temperature rise scenario, by mid-century | | | |
|---|---|---|---|---|
| | Well-below 2°C increase | 2.0°C increase | 2.6°C increase | 3.2°C increase |
| | *Paris target* | *The likely range of global temperature gains* | | *Severe case* |
| **Simulating for economic loss impacts from rising temperatures in % GDP, relative to a world without climate change (0°C)** | | | | |
| World | −4.2% | −11.0% | −13.9% | −18.1% |
| OECD | −3.1% | −7.6% | −8.1% | −10.6% |
| North America | −3.1% | −6.9% | −7.4% | −9.5% |
| South America | −4.1% | −10.8% | −13.0% | −17.0% |
| Europe | −2.8% | −7.7% | −8.0% | −10.5% |
| Middle East & Africa | −4.7% | −14.0% | −21.5% | −27.6% |
| Asia | −5.5% | −14.9% | −20.4% | −26.5% |
| Advanced Asia | −3.3% | −9.5% | −11.7% | −15.4% |
| ASEAN | −4.2% | −17.0% | −29.0% | −37.4% |
| Oceania | −4.3% | −11.2% | −12.3% | −16.3% |

**Note:** Temperature increases are from pre-industrial times to mid-century, and relate to increasing emissions and/or increasing climate sensitivity (reaction of temperatures to emissions) from left to right.
**Source:** Swiss Re Institute ”The economics of climate change: no action not an option”, April 2021

# Where is the problem coming from?
# 1. Sectors



# Where is the problem coming from?
# 2. World regions



# What to do?

- Balancing GHG emissions and absorption from the atmosphere in carbon sinks

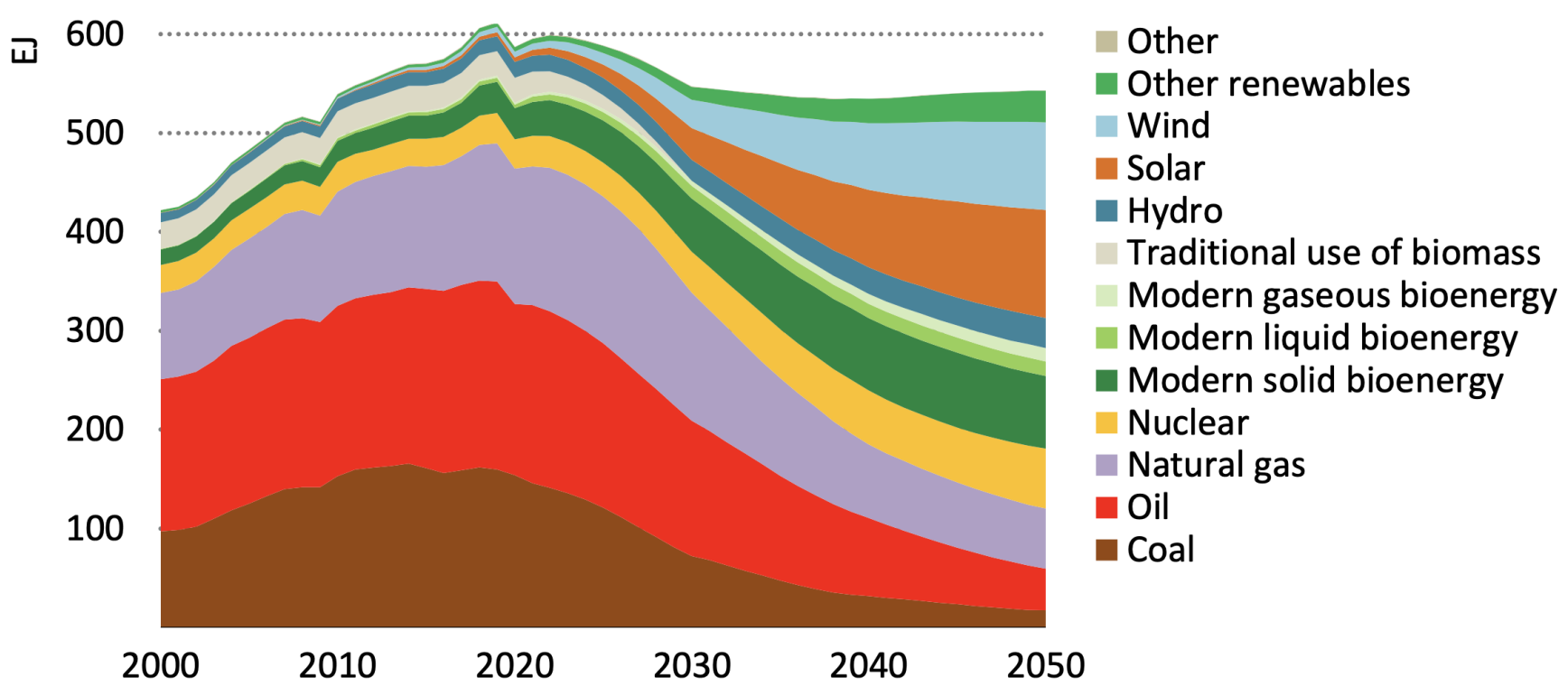
1. Strongly reduce global GHG emissions:
   - Reshape global energy system and mobility away from fossil fuels
   - Reduce overall energy use: energy efficiency and energy conservation

2. Remove GHG emissions from the atmosphere and store them:
   [Carbon sink: any system that absorbs more CO2 than it emits]
   - Natural carbon sinks: soil, forests and oceans
   - Artificial sinks: geoengineering technologies not yet available

*See a great assessment of European efforts in: Tagliapietra, Simone (2021) 'Fit for 55 marks Europe's climate moment of truth', Bruegel Blog, 14 July, https://www.bruegel.org/2021/07/fit-for-55-marks-europes-climate-moment-of-truth/*

# A radical transformation of the global energy mix is ahead of us

**Global energy mix development in the International Energy Agency net zero pathway**




International Energy Agency (2021) "Net Zero by 2050. A Roadmap for the Global Energy Sector"

# Transition requires strong climate policies

**Many policy tools**

- Higher carbon prices/taxes
- Emission standards
- Subsidies
- Sector regulations
- …

**Different sectors**

- Transport
- Electricity
- Heating
- Industry
- Agriculture
- …

# Current energy price hike is a great news for the fight against climate change

- Higher gas/electricity prices incentive households and businesses:
  - To reduce energy use (e.g. isolation of buildings, switching to more efficient vehicles, travelling less)
  - To install renewable energy production devices (e.g. solar panels, heat pumps)
- Yet poorer segments of the society could struggle
- Governments rush to limit energy price hikes and offer compensations

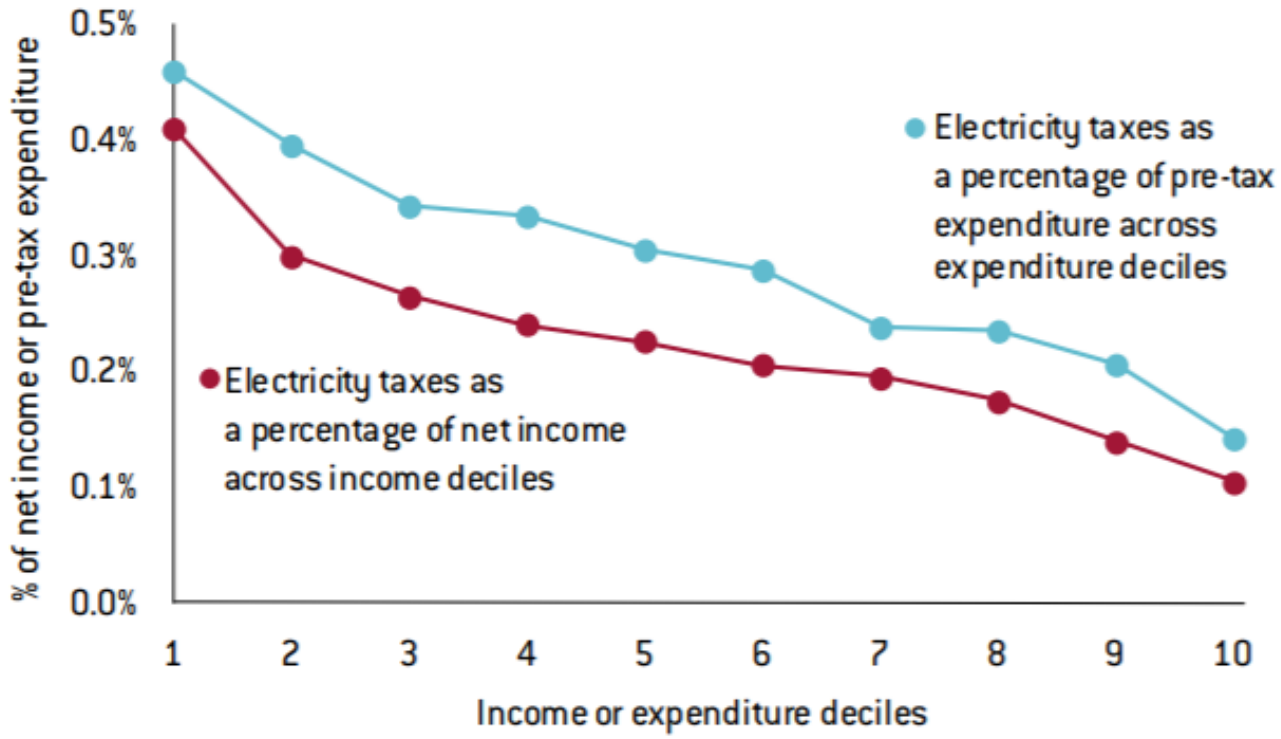
# Higher carbon prices can have adverse distributional effects

- Example: a significant carbon tax on road fuel:
  - Does barely affect the poor that own no car
  - Constitutes only a small share in the total expenditure of rich households
  - Might mainly affect middle-class car owners
  - Implies a strong rural/urban divide
  - Affects poor households that need a car and might not be able to buy an efficient one / while rich households might go electric
  - Will negatively affect petroleum refinery and other “brown” jobs
  - Will negatively affect the owners of oil reserves and other “brown” capital

*See an excellent discussion in Georg Zachmann, Grégory Claeys, Gustav Fredriksson (2018): Distributional Effects of Climate Policies, Bruegel Blueprint 28, https://www.bruegel.org/2018/11/distributional-effects-of-climate-policies/*

# Poorer households already pay a higher share of their income on electricity taxes

**Figure 7: Average electricity taxes (21 OECD countries) as a percentage of net income or pre-tax expenditure**




Source: Flues and Thomas (2015).

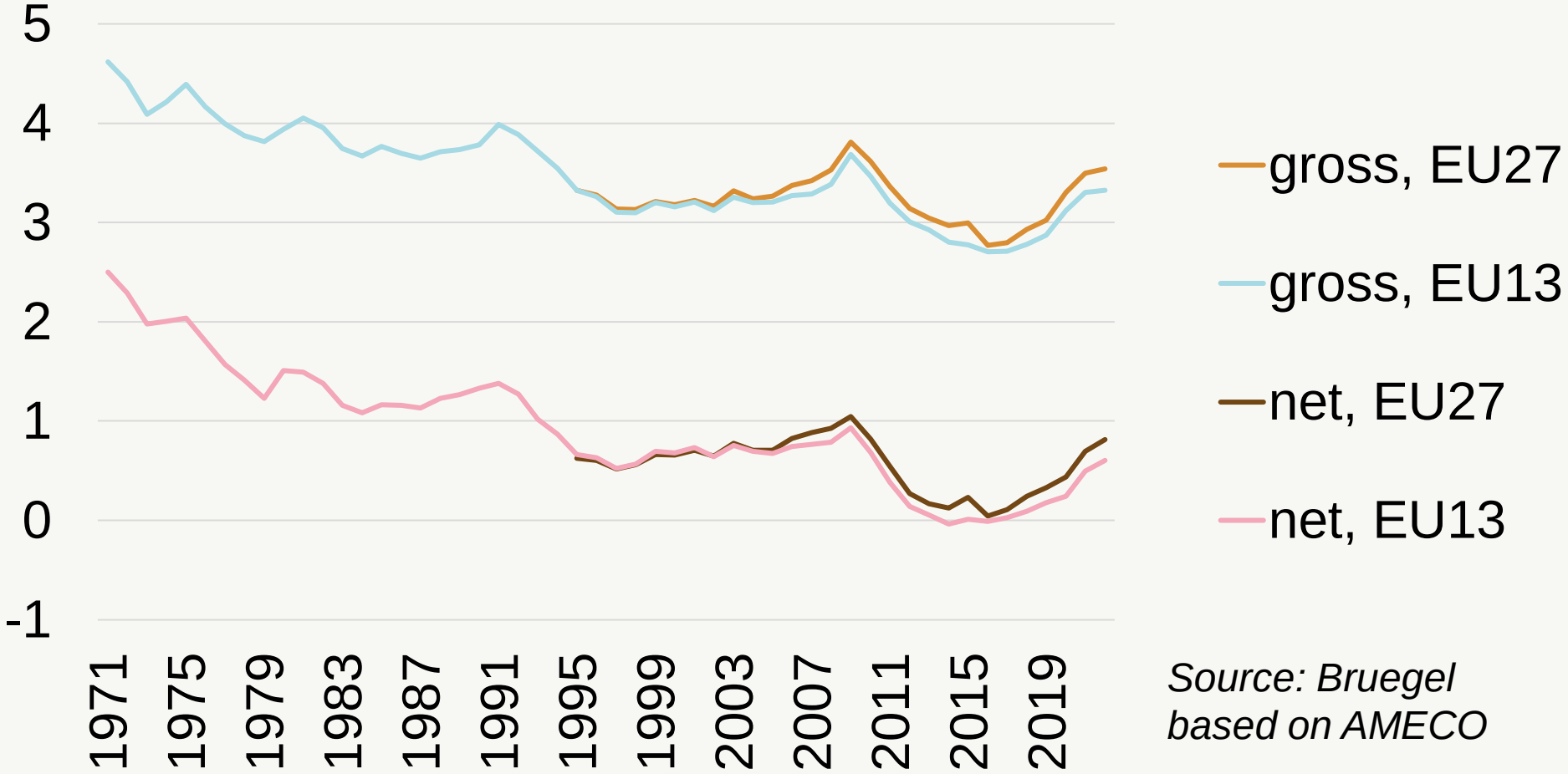
**Public acceptance** of climate policies would be crucial: governments have to consider distributional effects

# The European context

- Modest share in global emissions, yet EU should reach net zero and should lead the world
- Most new investment should be private, but additional public investment need to meet EU climate goals is around 0.5% - 1% of GDP annually
  - Fiscal consolidation will be necessary after extraordinary COVID-19 fiscal support of past years
  - Past consolidations resulted in major cuts in public investment
  - How to resolve this conflict?
- The current suspension of fiscal rules and the ongoing review of the European economic governance framework present an opportunity to discuss reforms

# From 2009 to 2016, public investment declined by 1% of GDP in the EU

**Gross and net public investment in the EU, % GDP, 1971-2022**

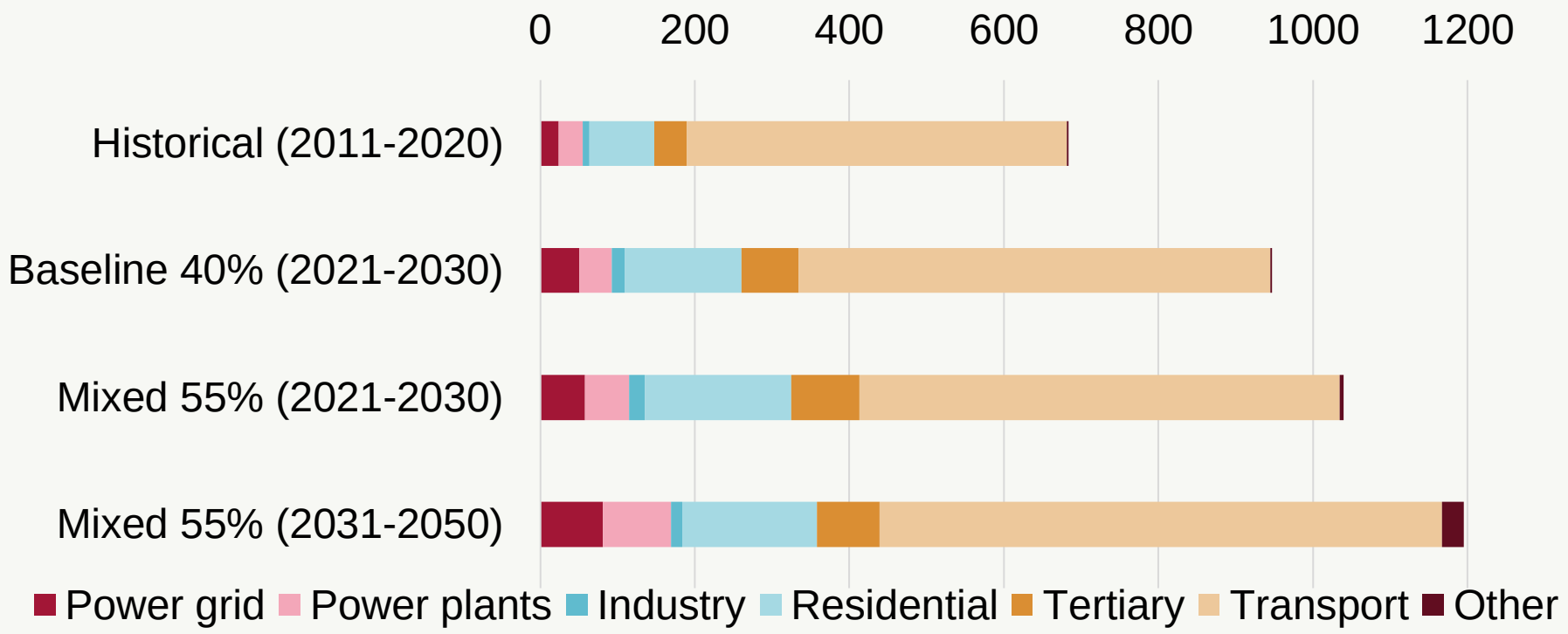



*Source: Bruegel based on AMECO*

*Note: EU13 is the aggregate of the first 15 members of the EU except the United Kingdom and Luxembourg. The forecasts for 2021-2022 include the impact of NGEU.*

# Middle European Commission scenario: additional annual investment need is €360bn

## Average annual green investment needs in the EU (€ billions, 2015 prices)




*Source: European Commission (2020)*

***Baseline 40%**: current policies for 40% emissions reduction by 2030.*

***Mixed 55%**: expanded carbon pricing and moderately increased ambitions in energy regulations to achieve 55% emission cut by 2030. Beyond that, the estimates for 2031-2050 do not assume any particular policy change to reach net zero in 2050.*

# Public share in green investment could be around one-quarter

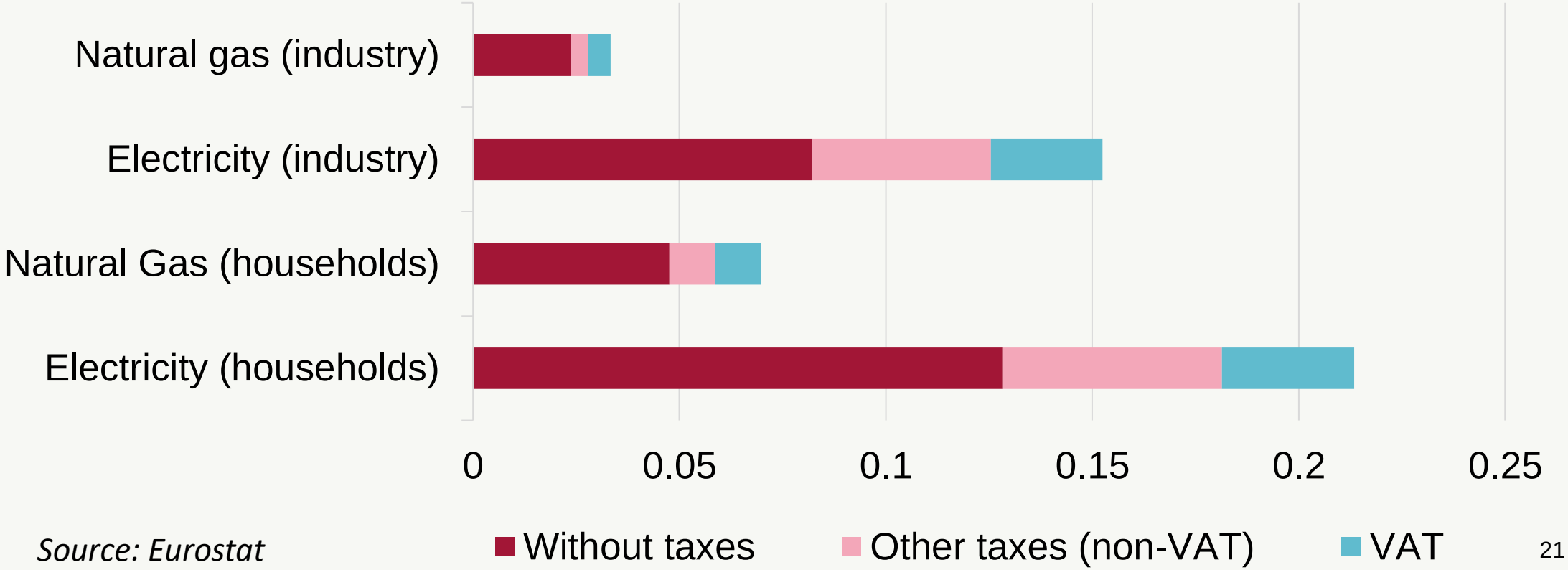
- 2019 National Energy and Climate Plans: public share in investment in energy and transport system was 28% on average

- The share of public funding can be reduced by regulation, taxation, higher carbon price

- A higher carbon emission price renders more green investment projects profitable, but has limitations (e.g. social acceptance, competitiveness)

# Oddly, electricity is taxed more than gas in the EU

**Average energy prices for EU27 households and industry (€ per KWh, second half of 2020)**




*Source: Eurostat*

# Key trade-offs concerning green public investment

- Major net capital investments difficult to fund by cutting spending
- Accounting principle: spread investment cost over the service life of the capital good (net investment to be funded with deficits)
- But green investment has uncertain growth effects → debt sustainability concerns
- Failing to invest in climate adaptation entails substantial risks

# How to increase green public investment when fiscal consolidation is needed?

- In a recent paper we discuss three options:
  1. A general relaxation of EU fiscal rules
  2. A centralised EU capacity to fund green investment, possibly via EU borrowing
  3. A green golden rule

- German discussion: circumvent the rules by e.g. setting up a special purpose vehicle in 2022 when fiscal rules are still suspended

**Darvas, Zsolt and Guntram B. Wolff (2021): "A green fiscal pact: climate investment in times of budget consolidation", Bruegel Policy Contribution 18/2021, https://www.bruegel.org/2021/09/a-green-fiscal-pact-climate-investment-in-times-of-budget-consolidation/*

# Our proposal for a ‘Green Fiscal Pact’

- Lowest possible speed of fiscal consolidation allowed by fiscal rules
- Green golden rule: exclude net green public investment from the deficit and debt calculations under the EU’s fiscal rules (be mindful of greenwashing risks)
- Fiscally-weak countries should rely on Next Generation EU (NGEU) for their green investment (consider green golden rule after 2026 when NGEU expires)
- Incentives for private investment through appropriate taxation and regulation can help reduce the cost to public sector

# Three key messages

1. Addressing climate change is an urgent task

2. Regulation and higher carbon price should play important roles, but social support sets limits

3. A green golden rule is the best approach to incentivize green public investment, but debt sustainability concerns remain in fiscally-weak countries

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# *Thank you for your attention*