



Laboratory for Climate Change Economics

Green transition in turbulent times

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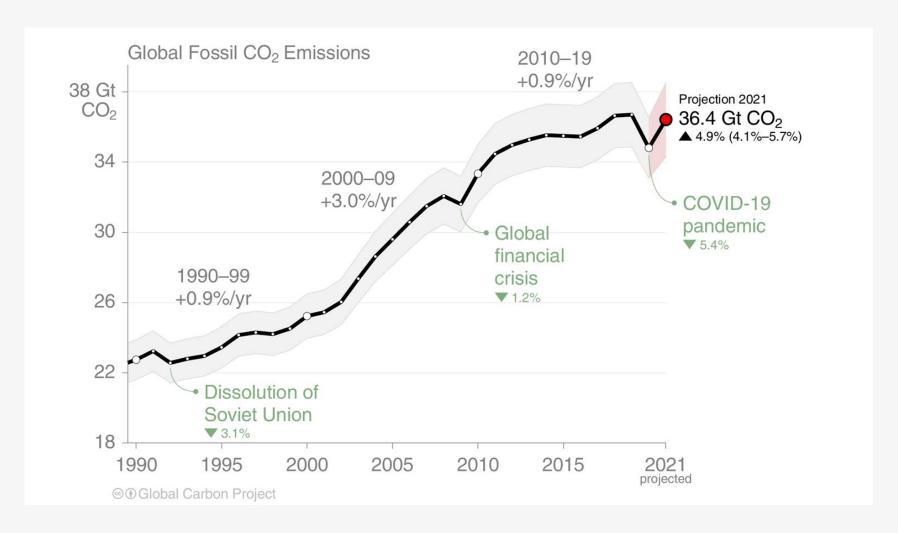
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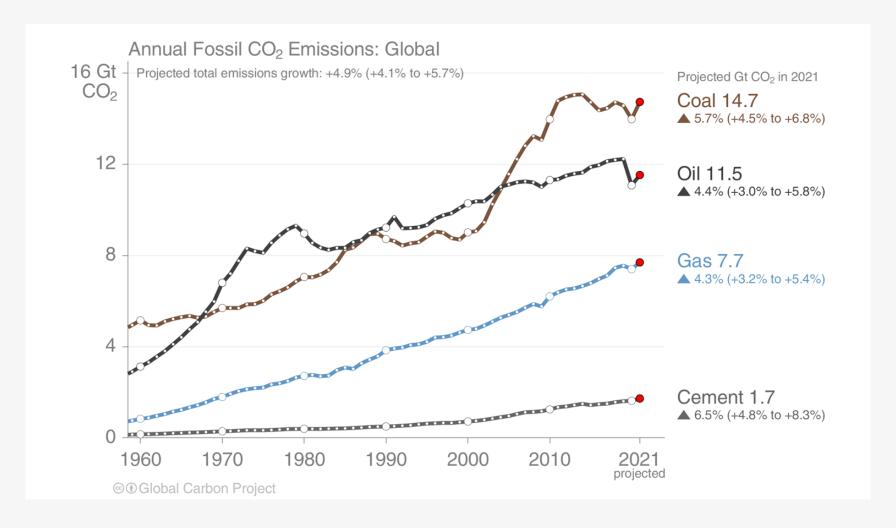


Global emissions nearly restored to pre-COVID level by 2021



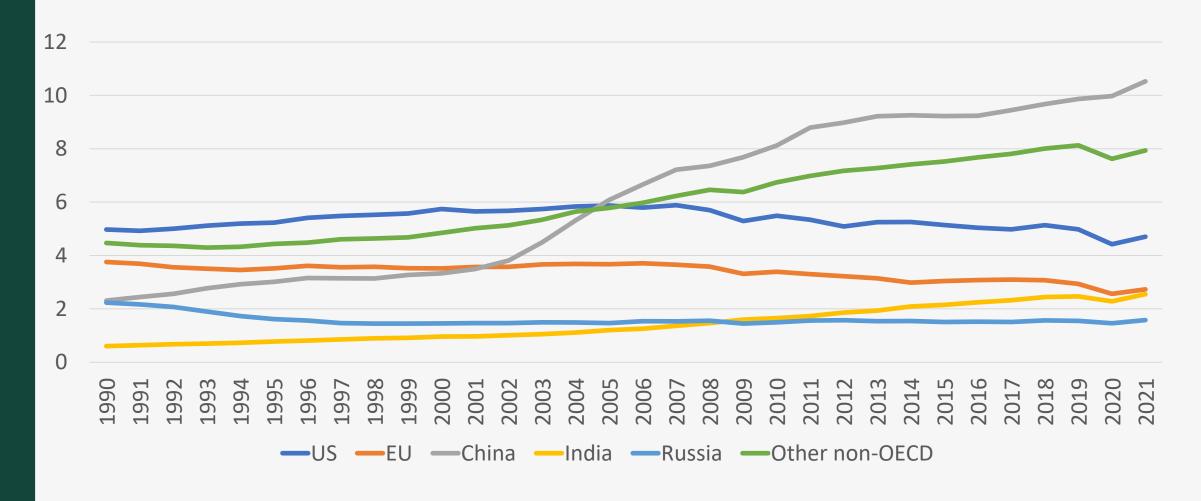
Source: Friedlingstein et al 2021; Global Carbon Project 2021

Coal and gas production in 2021 was higher than before COVID-19



Source: Friedlingstein et al 2021; Global Carbon Project 2021

Global emissions from fossil fuels combustion in 1990-2021



Finance gap

✓ 2.4 trillion dollars are required for climate projects in developing countries. How to mobilize them?

Private finance:

✓ Through global carbon markets, convergence of taxonomy of green projects, technology transfer

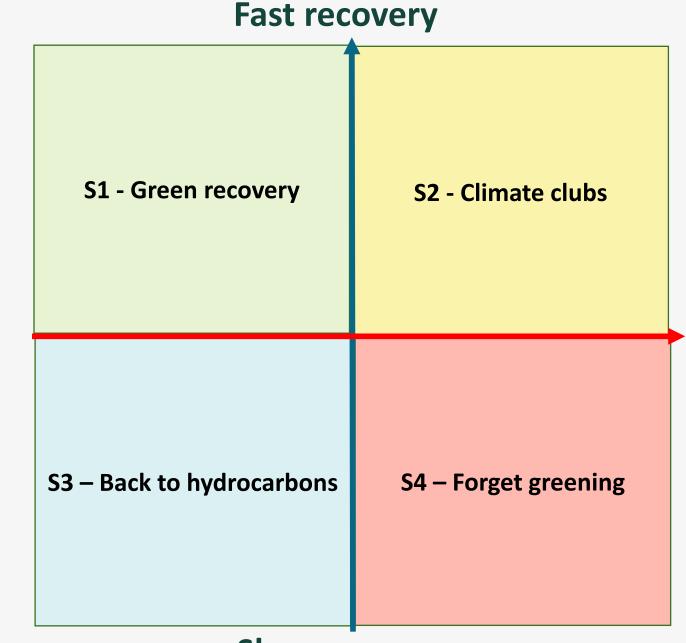
Public capital:

- ✓ Through bilateral deals (South Africa, Indonesia etc.)
- ✓ Through creation of new fonds
- ✓ Through reforms of Bretton-Woods institutions
- ✓ Through conditional restructuring of debts of developing countries

Climate implications of Ukraine crisis

- ✓ Time horizons matter:
 - ✓ Limiting Russian exports will lead to the rise of emissions in Europe in short term but may lead to their decrease in the long-term
 - ✓ Does Europe have time for long-term hopes?
- ✓ There is no single trajectory of global (and even Western) green transition anymore
 - ✓ Europe: just 8% of global emissions
 - ✓ In China and India which really matter green transition may slow down
 - ✓ US and European trends differ dramatically
 - ✓ International cooperation is weakening

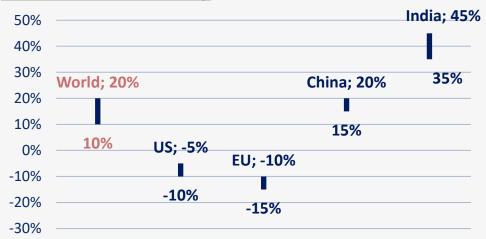
Scenarios of greening in new conditions



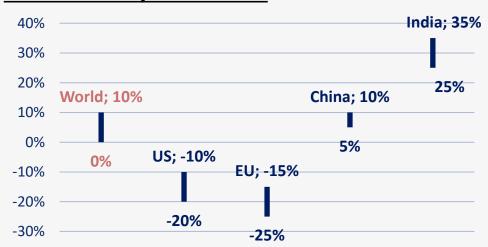
Slow recovery

Energy consumption by 2030 compared to 2019

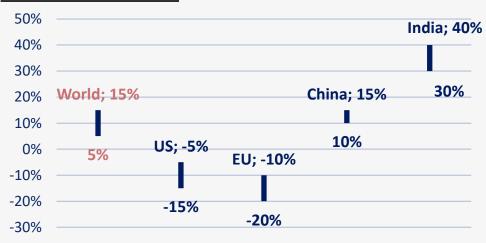
<u>S1 – Green recovery</u>



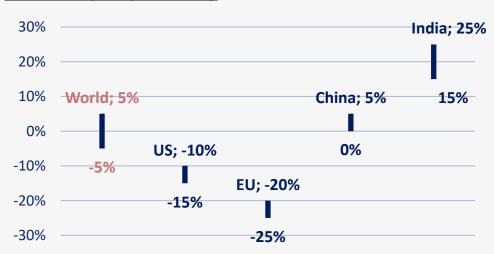
S3: Back to hydrocarbons



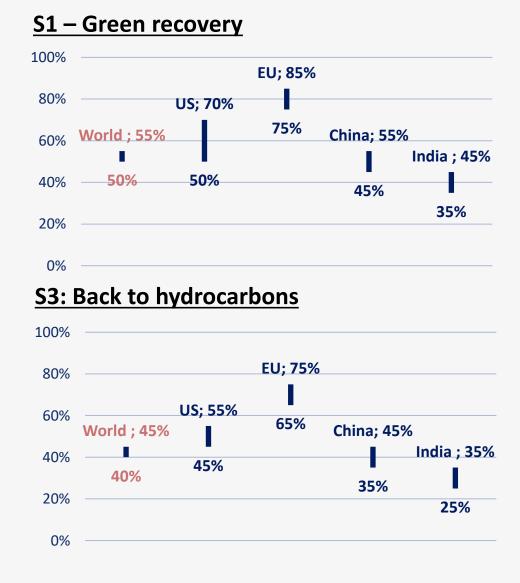
S2 – Climate club



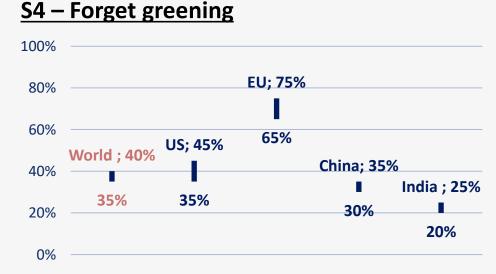
S4 – Forget greening



Share of renewables and nuclear energy in power generation by 2030







NDC in leading countries

Current NDCs:

- US: reduce emissions by 50% by 2030 compared to 2005
- EU: reduce emissions by 55% by 2030 compared to 1990
- China: reduce carbon intensity of GDP by 65% by 2030 compared to 2005 and pass a peak of emissions
- India: reduce carbon intensity of GDP by 45% by 2030 compared to 2005

<u>S1 – Green recovery</u>

- US: **S** China: **S**
- EU:
- India:

S3: Back to hydrocarbons

- US: X
- China:

- EU:
- India:

S2 – Climate club

- US:
- China:
- EU: 🕥
- India:

<u>S4 – Forget greening</u>

- US: X
- China: X
- EU: X

India:



Carbon border adjustment

S1 – Green recovery

US: may introduce

• EU: introduce in 2026 in relatively soft form

• China: 🛭

• India: 😵

S3: Back to hydrocarbons

• US: 😵

• EU: introduce in 2026 in relatively soft form

• China: 🛭

• India: 😵

S2 – Climate club

US: may introduce

• EU: introduce in 2026 in relatively strict form

China may introduce

• India: 🗴

<u>S4 – Forget greening</u>

• US: **⊗**

• EU: introduce in 2026 in relatively strict form

• China: 🗴

• India: ⊗

Climate cooperation

S1 – Green recovery

 The largest possible opportunities for cooperation between developed and developing countries in technology transfer and climate finance

S3: Back to hydrocarbons

 Moderate opportunities for cooperation between developed and developing countries in technology transfer and climate finance

S2 – Climate club

 Opportunities for financial and technological cooperation in climate area between developed and developing countries are limited

S4 – Forget greening

 Freezing the cooperation between developed and developing countries in technology transfer and climate finance

Scenarios of greening in new conditions

conflictedness

Fast recovery

S1 - Green recovery

- Green agenda intensifies remake of 1970-s
- Rising decarbonization ambitions
- Spread of carbon prices in many countries; launch of CBAM in the EU
- Temperature trajectory 2.5°C, opportunities for 2 °C

S2 - Climate clubs

- Green agenda intensifies in the West
- EU CBAM in the strictest version
- Possible creation of climate club of Western countries
- Limited cooperation between developed and developing countries
- Temperature trajectory 2.25-2.75°C

S3 – Back to hydrocarbons

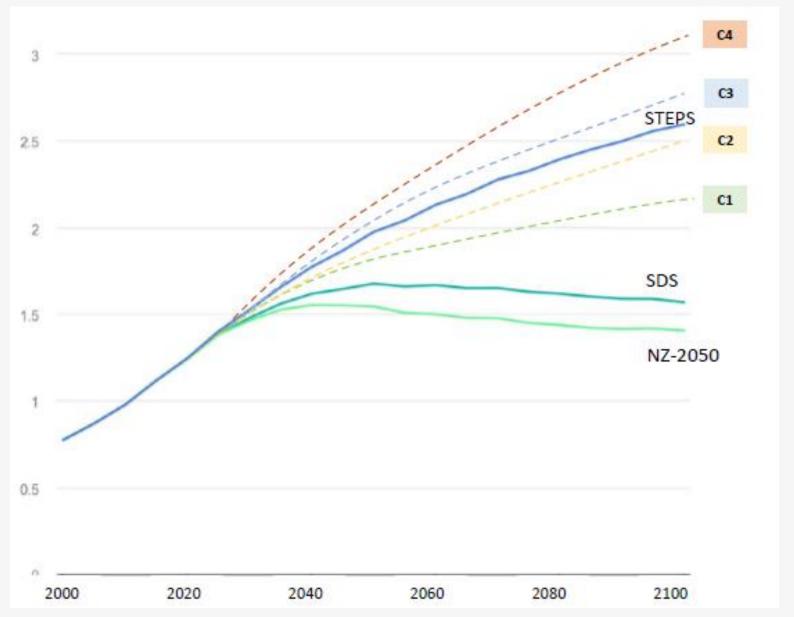
- Inertial development of green agenda
- Fossil fuel still used
- EU CBAM in the mildest version
- Opportunities for technical and financial cooperation between developed and developing countries
- Temperature trajectory 2.5-3°C

S4 – Forget greening

- Stop of the green agenda
- Deceleration of energy transition,
 rise of fossil fuels in energy mix
- EU CBAM in the mildest version
- Limited cooperation between developed and developing countries
- Temperature trajectory 3°C or more

Slow recovery

Our scenarios vs IEA







Laboratory for Climate Change Economics

Thanks for your attention!

My digital business card



