



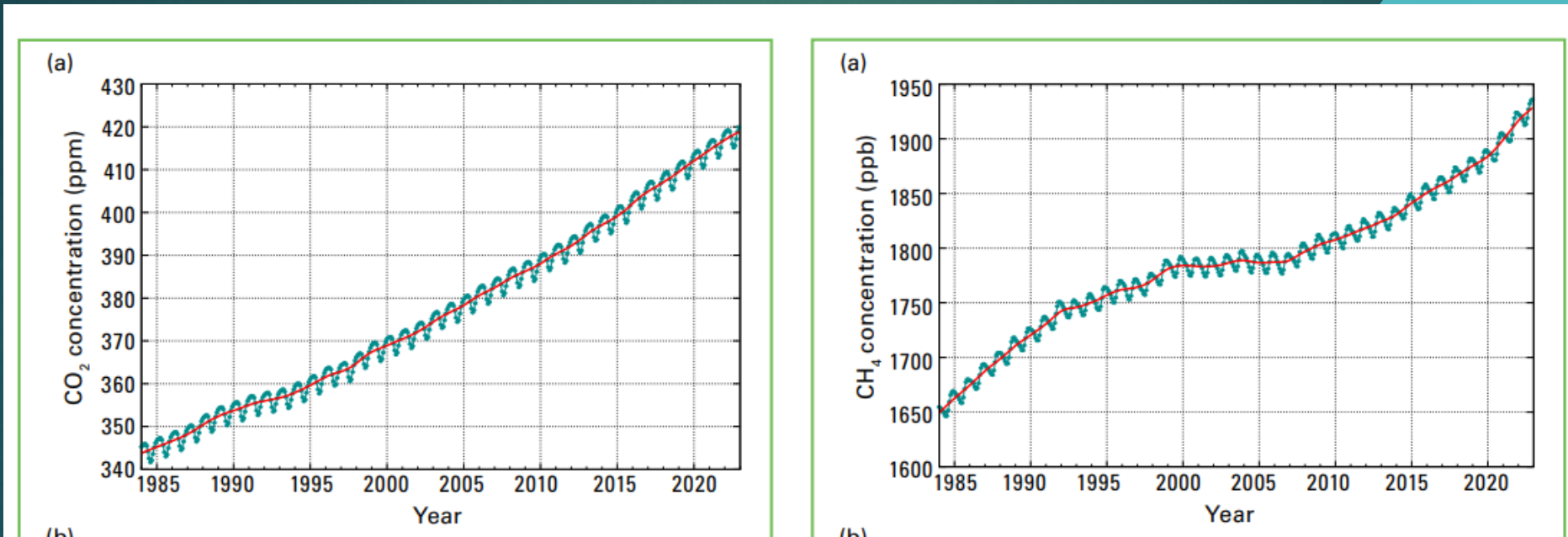
Keeping oil underground: Towards a Fossil Fuel Non-Proliferation Treaty

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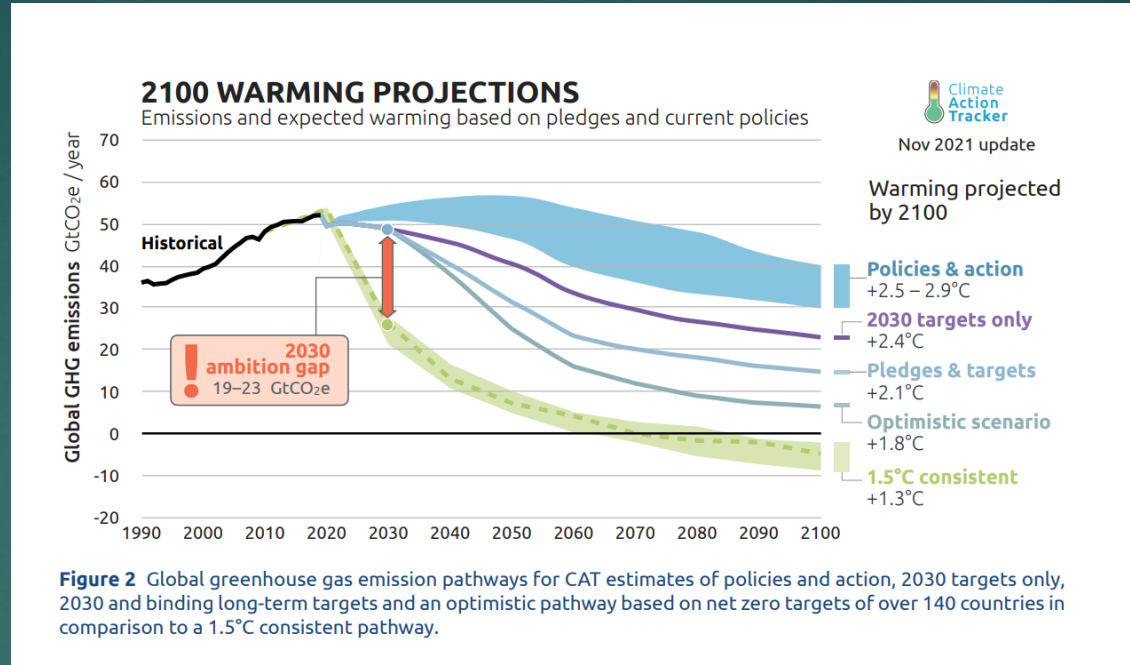
UNIVERSITY OF PADOVA

CO₂ and CH₄ concentrations: lack of effective mitigation

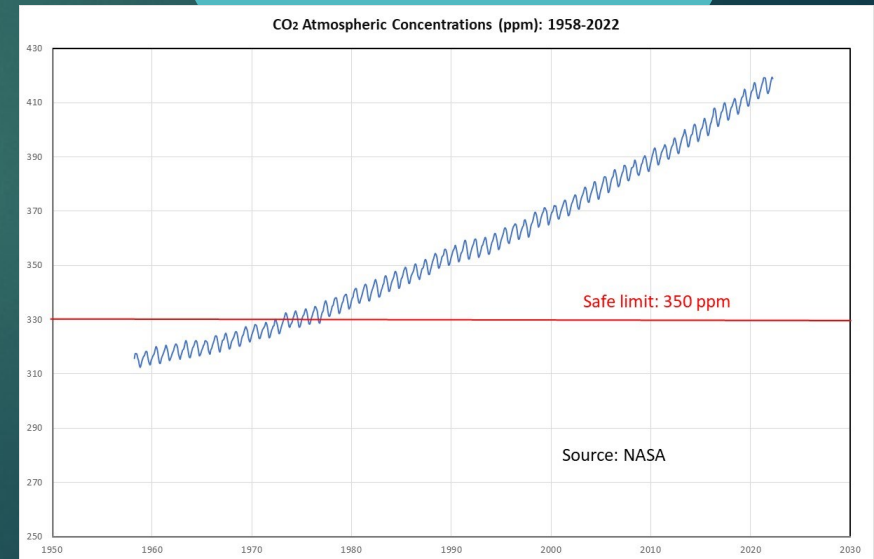


Source: WMO, 2023.

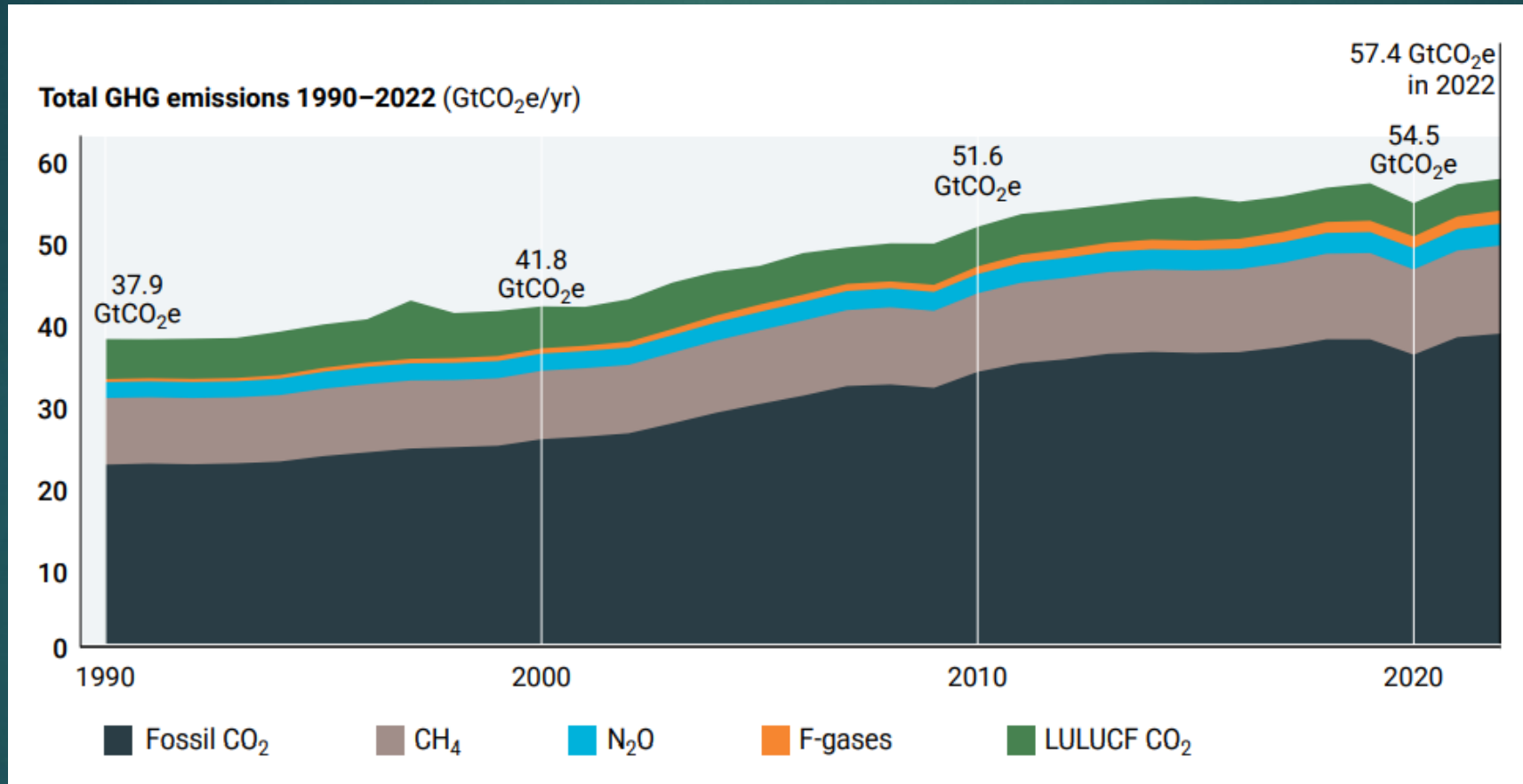
A large gap between current policies and Paris Agreement goals



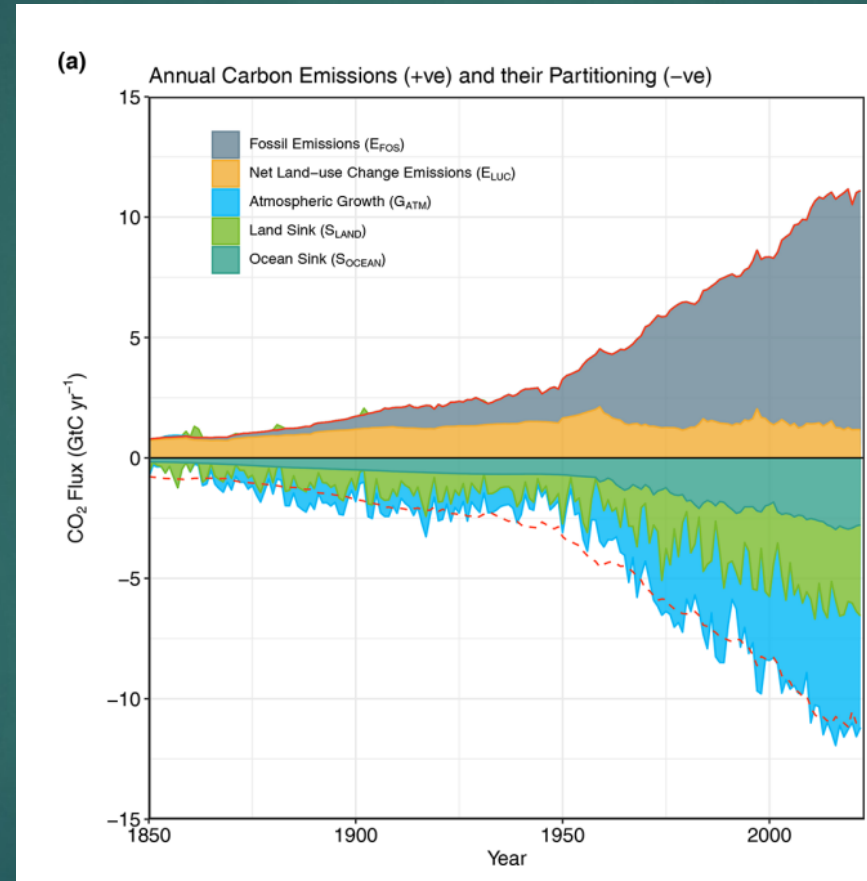
►Source: IPCC, 2022. Mitigation of Climate Change, Summary for Policymakers.



Fossil fuels and deforestation emissions

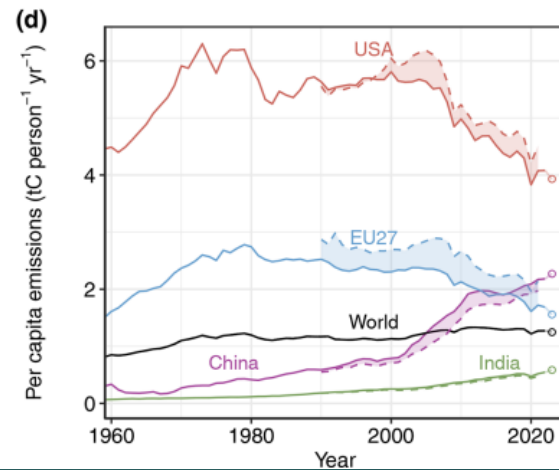
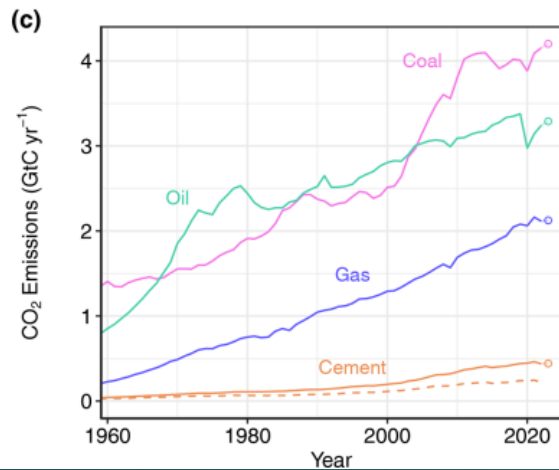
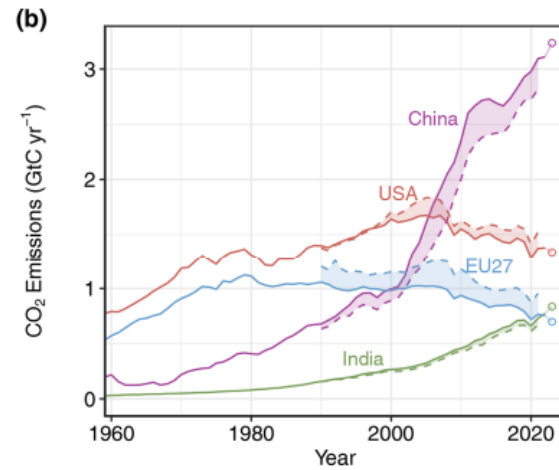
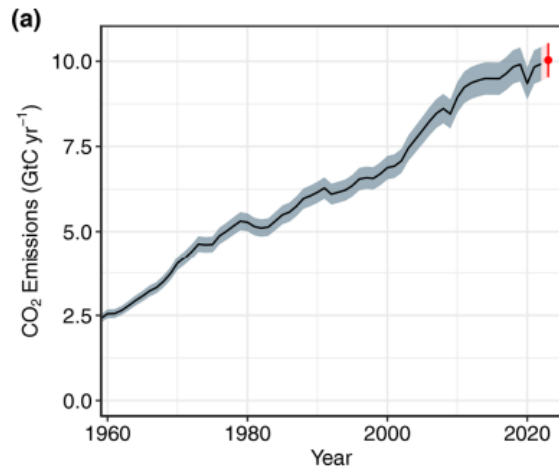


Carbon emissions from fossil fuels and deforestation, not declining trend.

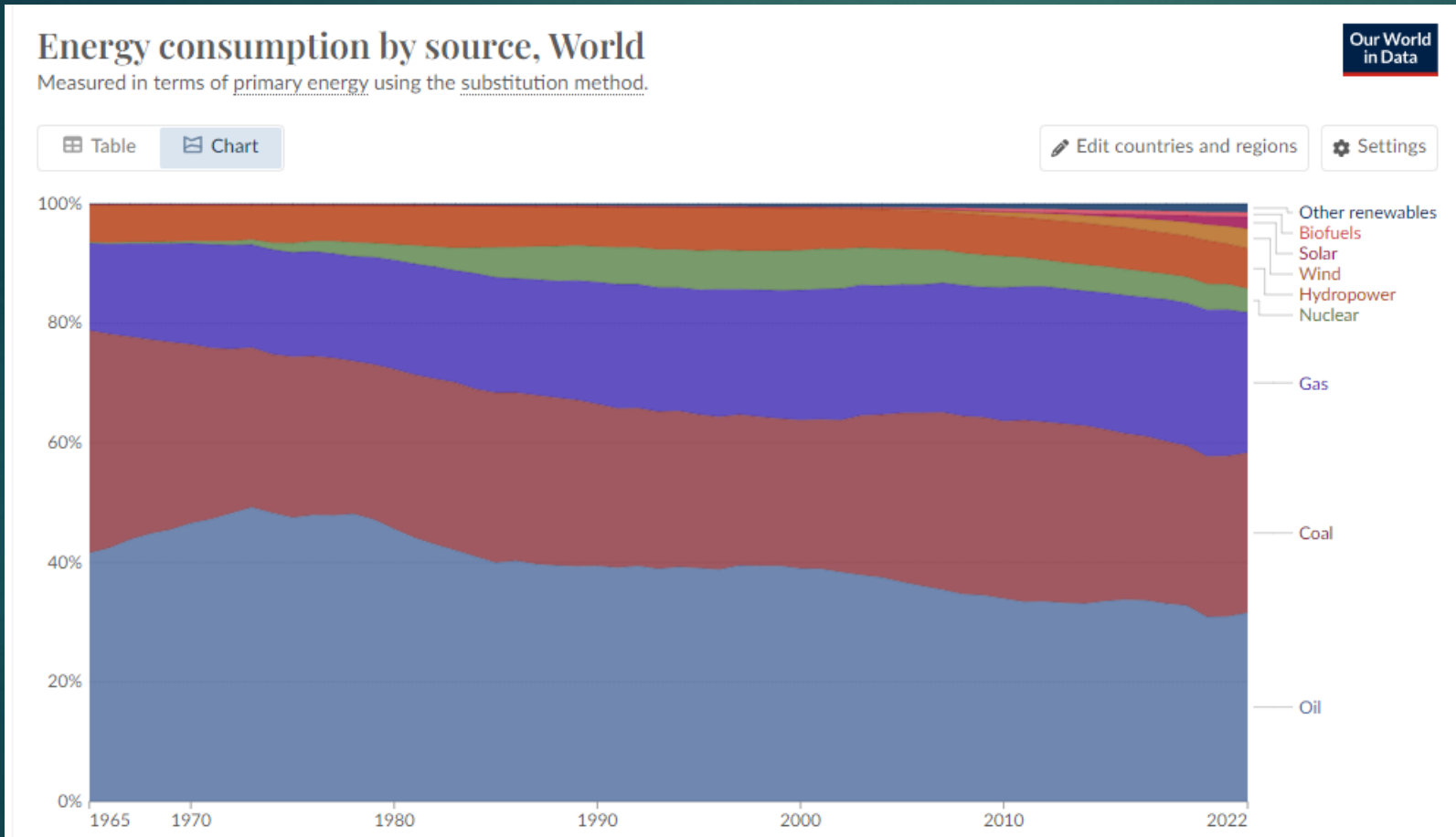


CO₂ Emissions by region and source

P. Friedlingstein et al.: Global Carbon Budget 2023



Current energy transition



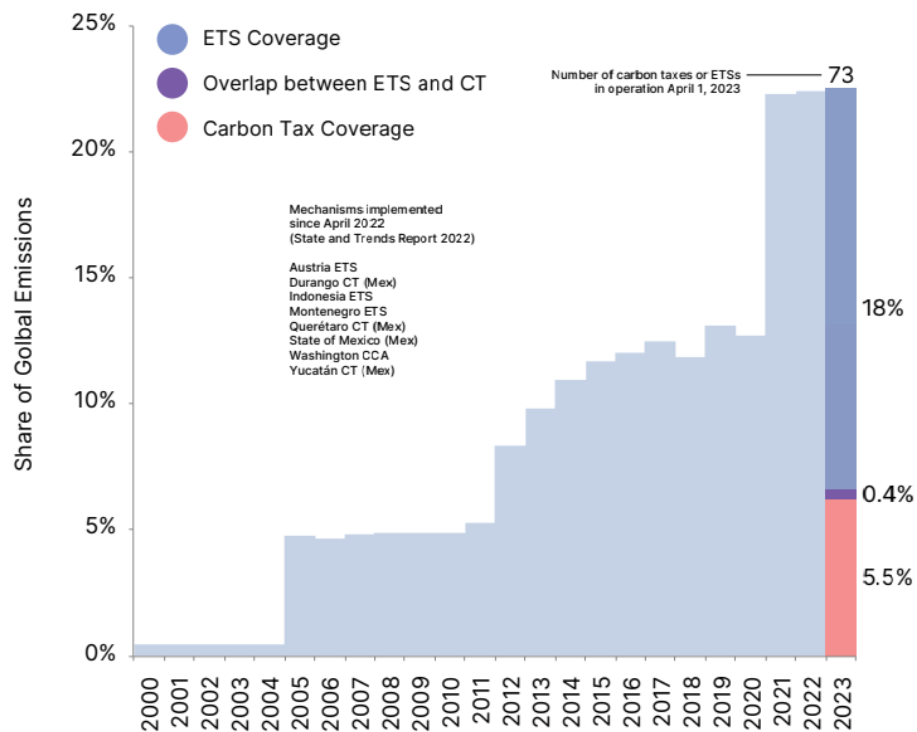
Fossil fuel share of energy consumption is declining, but still accounts for 82% of world total.

Global renewable capacity will triple by 2030, but it is still low (14%).

Current mitigation tools, based on demand restrictions, are insufficient

- ▶ Current mitigation policies have been based on carbon prices and incentives to clean energy research and expansion.
- ▶ **Carbon trading** has been the main instrument, and **carbon taxes** have been also applied with lesser extent.
- ▶ **Carbon pricing tools in 2023 covered only 23% on world CO₂ emissions**, and in most cases, **prices were too low** (World Bank).
- ▶ Carbon prices have been affected by instability and low values, but they are now increasing in Europe.

FIGURE 6
SHARE OF GLOBAL GHG EMISSIONS COVERED BY ETSS AND CARBON TAXES



ETSs and carbon taxes in operation cover around 23% of global GHG emissions

More than 2/3 of fossil fuel reserves must be kept unexploited to fulfill Paris Agreement goals

Table 1 | Unextractable reserves of fossil fuels by region under the 1.5 °C scenario

Region	Oil		Fossil methane gas				Coal					
	2050	2100	2050	2100	2050	2100	2050	2100				
	(%)	(Gb)	(%)	(Gb)	(%)	(Tcm)	(%)	(Tcm)	(%)	(Gt)	(%)	(Gt)
Africa (AFR)	51	53	44	46	49	6.2	43	5.5	86	27	85	26
Australia and other OECD Pacific (AUS)	40	1.7	40	2	35	0.8	31	0.7	95	80	95	80
Canada (CAN)	83%	43	83%	43	81%	1.6	81%	1.6	83%	4.3	83%	4
China and India (CHI + IND)	47%	17	36%	13	35%	1.7	32%	1.5	76%	182	73%	177
Russia and former Soviet states (FSU)	38%	57	29%	44	63%	30	55%	26.1	97%	205	97%	205
Central and South America (CSA)	73%	98	62%	84	67%	3.6	65%	3.5	84%	11	82%	11
Europe (EUR)	72%	11.8	72%	12	43%	1.5	40%	1.4	90%	69	90%	69
Middle East (MEA)	62%	409	38%	253	64%	36	49%	27.7	100%	4.8	100%	5
Other Developing Asia (ODA)	36%	7.8	31%	7	32%	2.3	25%	1.8	42%	10	39%	9
USA	31%	21.7	25%	17	52%	5.9	52%	5.9	97%	233	97%	232
Global	58%	744	43%	545	59%	92	50%	77	89%	826	88%	818

Source: Welsby, Dan, James, Price, Pye, Steve &. and Ekins Paul. (2021) “Unextractable Fossil fuels in a 1.5 °C World” . Nature | Vol 597 | 9 September 2021. <https://doi.org/10.1038/s41586-021-03821-8> .

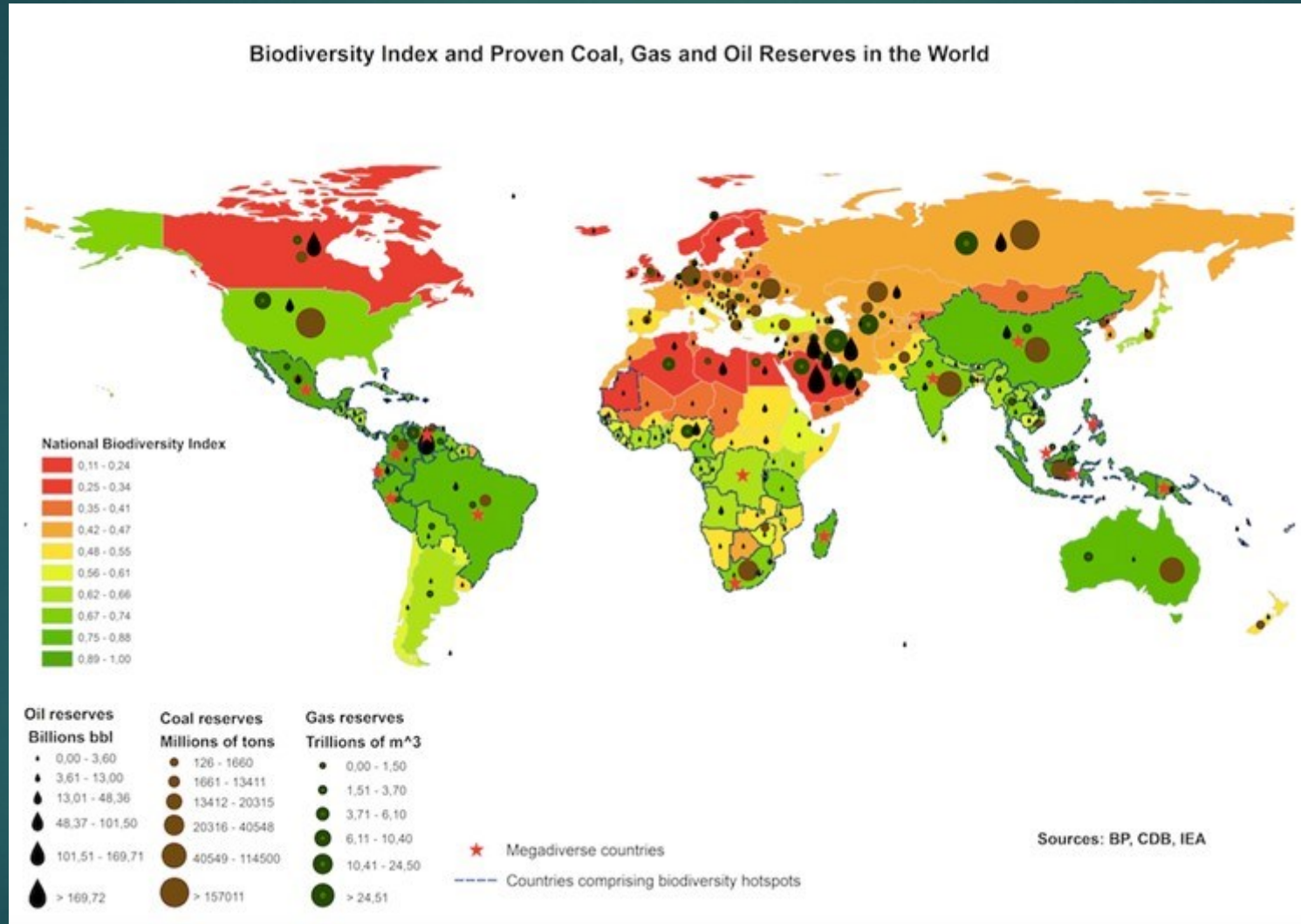
Supply-side mitigation, a required instrument to fulfill Paris goals

- ▶ In addition to current mitigation policies, **restrictions in fossil fuel supply** are necessary to fulfill Paris agreement goals.
- ▶ **2/3 of reserves must be kept underground, but there is not a shared criteria for defining which reserves will remain unburned.**
- ▶ **A fossil fuel treaty must provide criteria for a fair and effective transition away from coal, oil and gas.**
- ▶ **Reserves with the highest extraction and environmental impacts must be declared unburnable, as in the case of tropical rainforests.**

The Fossil Fuel Non-Proliferation Treaty Initiative

- ▶ “The Fossil Fuel Non-Proliferation Treaty Initiative is a global effort to foster international cooperation to accelerate a transition to renewable energy for everyone, and end the expansion of coal, oil and gas”.
- ▶ It has been endorsed by:
 - ▶ **12 national states**, including Colombia and 11 island states in the Pacific and Caribbean.
 - ▶ **103 cities and regions**, including Vancouver, Toronto, Montreal, Sydney, Paris, Bonn, Rome, Lima and Belem.
 - ▶ **101 Nobel laureates**, thousands of scientists and 158 civil society organizations.

Biodiversity and extractive activities overlap



The case for keeping fossil fuel underground in reserves located in biodiverse hotspots in developing countries

- ▶ About 24% of world fossil fuel reserves are located in developing megadiverse countries.
- ▶ Keeping fossil fuels underground there would protect biodiversity and reduce emissions at the same time.

Distribution of proven fossil fuel reserves by development level and biodiversity				
Country group	Oil	Natural Gas	Coal	Total
<i>Percentages of total reserves in TOE</i>				
<u>Megadiverse LDC</u>				
Developed not megadiverse	15.9	20.3	25.6	21.9
Developing not megadiverse	59.4	63.5	7.6	33.1
Total not megadiverse	75.3	83.8	33.3	55.0
Developed megadiverse	2.3	7.5	35.5	20.7
Developing megadiverse	22.5	8.7	31.3	24.3
Total megadiverse	24.7	16.2	66.7	45.0
Developed Countries	18.2	27.7	61.1	42.6
Developing Countries	81.8	72.3	38.9	57.4
World Total	100	100	100	100
<u>Developing-BDHS vs Others</u>				
Developed plus Developing-Not-BDHS	73.9	87.5	68.5	73.9
Developing-BDHS	26.1	12.5	31.5	26.1
World Total	100	100	100	100

The Yasuni-ITT Initiative: structure

- ▶ In 2007, Ecuador committed itself to keep the ITT oil fields (**856 million barrels**) indefinitely **unexploited**.
- ▶ The international community, in exchange, should create an UN-administrated Fund to finance:
 - ▶ **Renewable energy** projects.
 - ▶ **Biodiversity** protection.
 - ▶ Equitable social development.
 - ▶ Improving energy efficiency.
- ▶ The Initiative was cancelled in 2013, but after a 2023 national consult, Ecuador decided to leave the reserve unexploited.

An international tool for keeping fossil fuels unexploited in biodiversity hotspots

- ▶ We propose an international fund to keep unexploited fossil fuel reserves in developing countries.
- ▶ Following the structure of the Yasuni ITT Initiative, the Fund would be financed by higher income countries and would transfer resources and opportunities to developing nations. Funds would be earmarked for renewable energy, energy efficiency, biodiversity conservation, avoided deforestation, promoting a transition to a sustainable economy, involving diversification away from fossil fuels.
- ▶ This proposal is compatible with Art. 6 of the Paris Agreement, which allows for association of countries around new mitigation tools.

Leaving fossil fuels underground: new opportunities

- ▶ **South Africa** signed an Energy Transition Partnership with the European Union, the UK and the US, to “move away from coal” and “accelerate the transition to a low-emission economy”. South Africa will receive \$8.5 billion in grants, investments and loans. (https://ec.europa.eu/commission/presscorner/detail/it/ip_21_5768)
- ▶ **Indonesia** signed an agreement with US, Japan and other wealthy countries to accelerate its transition away from coal, receiving a \$ 20 billion support.
- ▶ **Vietnam** signed a similar agreement in 2022 for 15.5 billion dollars.
- ▶ These agreements may become the first significant steps towards leaving fossil fuels underground in megadiverse developing countries.
- ▶ The new **Colombian** government has a plan to progressively reducing its dependence on coal and oil exports and promoting renewable energy. It is the most ambitious plan for a transition away from fossil fuels in an oil exporter developing country in Latin America.
- ▶ In August 2023, **Ecuador** approved, in a national consult, leaving unexploited a large oil reserve in the ITT Field at the Yasuni National Park.

Leaving oil underground in the Amazon, and saving the rainforest

- ▶ The Amazon is the largest remaining rainforest in the planet.
- ▶ About a third of the rainforest have been deforested or degraded, and a tipping point of sabanization can be unleashed as a result of climate change and deforestation.
- ▶ Lula had reduced deforestation in Brazil by 50% in the last 6 months.
- ▶ Colombia has a energy transition and conservation strategy.
- ▶ Ecuador decided to leave oil underground in the Yasuni National Park (ITT field).
- ▶ A new emerging set of opportunities must led to a new paradigm of conservation, leaving oil underground in the Andean Amazon.