cenergia

PROMISING CLIMATE PROGRESS

Recent net-zero pledges could take the world a long way towards meeting the Paris climate goals, but a gap remains – A national perspective

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Climate goals

- The **Paris Agreement** aims to limit the increase of global mean temperature to well below 2ºC and preferably 1.5ºC.
- Countries should set their own Nationally Determined Contributions (NDCs), including 2030 emissions targets and plans of action to achieve those targets.
- Many nations have also set long-term goals, notably the **net-zero targets** proposed before and during the Conference of the Parties (COP26) in Glasgow, in 2021.

Climate goals

The crucial question is:

How close do these ambitions take us toward the Paris goals?

Evaluating the net-zero pledges

The **ENGAGE project** aims to answer this question, through a collaboration of global and national modelling groups assessing how current targets and policies affect emissions based on Integrated Assessment Models (IAMs) comparisons.

In ENGAGE:

- ***Current policies scenario:*** assuming all climate policies that are already implemented.
- ***NDC scenario:*** fully implementing all NDC policies to 2030, with ambition levels remaining constant after that.
- ***Glasgow scenario:*** fully implementing NDC and the net-zero pledge announced by the end of COP26.
- ***Glasgow+ scenario:*** fully implementing and expanding the net-zero target year in case the country has no pledge
- ***Glasgow++ scenario:*** fully implementing and anticipating the net-zero target year.
- ***2°C and 1.5°C scenarios:*** countries must respect the carbon budget allocated by global IAMs based on global cost-optimal ways of meeting these temperature goals in 2100.

In ENGAGE:

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Based on a global carbon budget aligned with a 1.5°C and 2.0°C, a global IAM allocates for each country the carbon budget they have considering cost as the proxy for optimization.

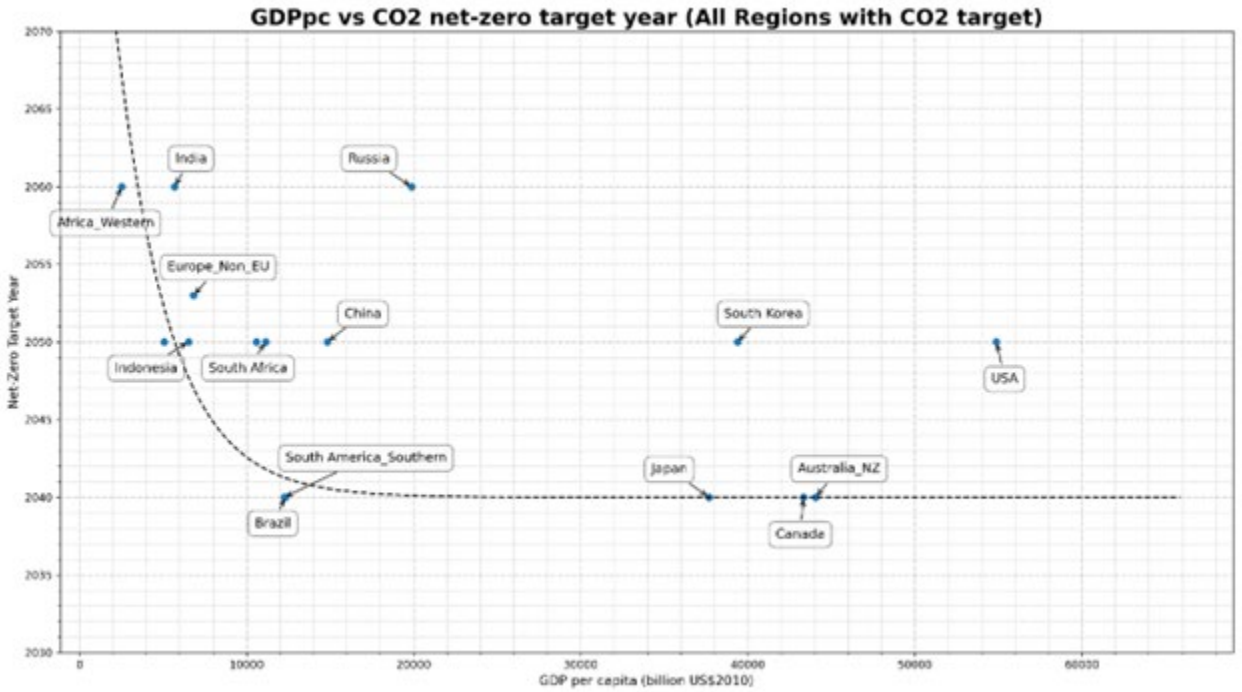
National Teams	CO_2 Budget 2020-2050 in $GtCO_2$			
	full century 1.5°C	**full century 1.5°C (excl. LULUCF)**	full century 2°C	full century 2°C (excl. LULUCF)
Brazil	**9.6**	2.3	14.2	8.7
China	**155.5**	160.7	232.7	237.6
India	**34.0**	32.3	58.7	56.4
Indonesia	**9.4**	-0.6	20.6	10.9
Japan	**11.0**	11.9	17.6	18.5
Mexico	**5.5**	5.4	9.4	8.7
South Korea	**4.1**	4.5	11.2	11.6
Thailand	**6.9**	4.9	10.2	8.8
Vietnam	**4.8**	3.4	7.2	5.7

In ENGAGE:

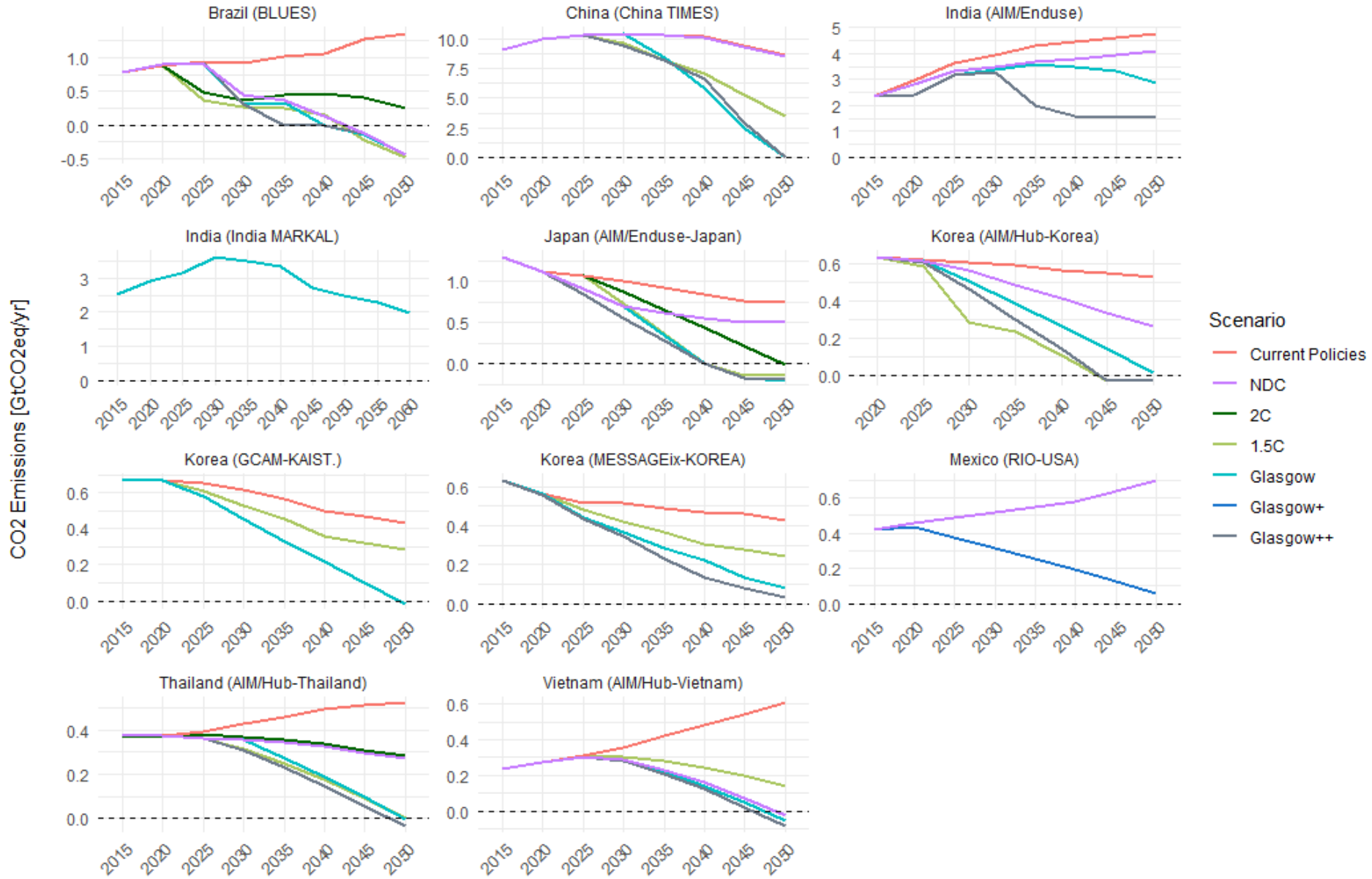
Note that the net-zero targets differ: 1) CO_2 vs GHG, 2) year, and 3) elaboration of required policies.

Net zero target year for missing countries was defined based on a GDPxCO_2 emission regression

Country	Net-zero target year (CO_2) for Glasgow	Net-zero target year (CO_2) for Glasgow+
China	2050	
Brazil	2040	
EU28	2040	
India	2060	
Japan	2040	
Mexico	-	2040
Russia	2060	
South Korea	2050	
Thailand	2050	
Vietnam	2050	

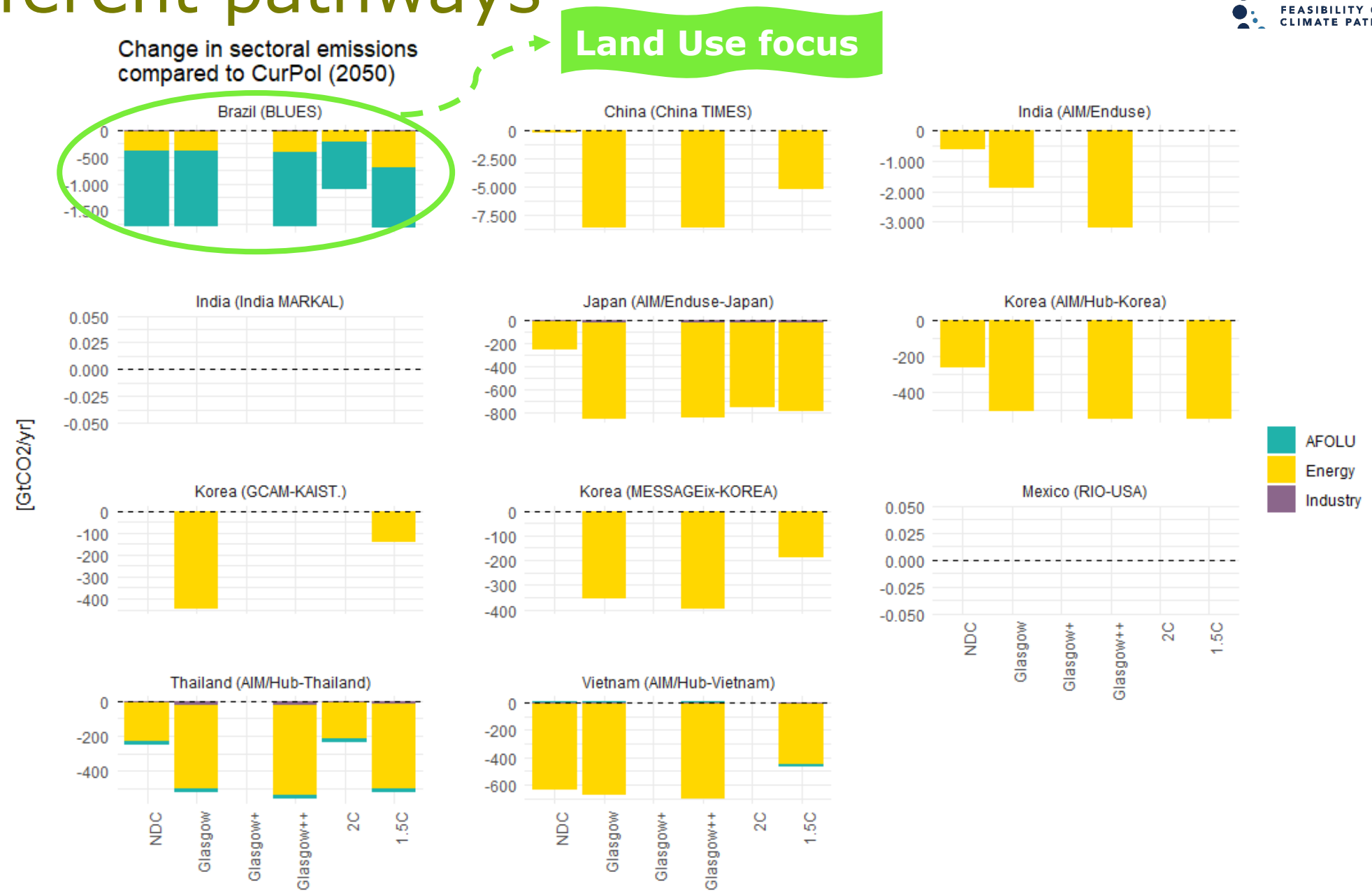


Five futures

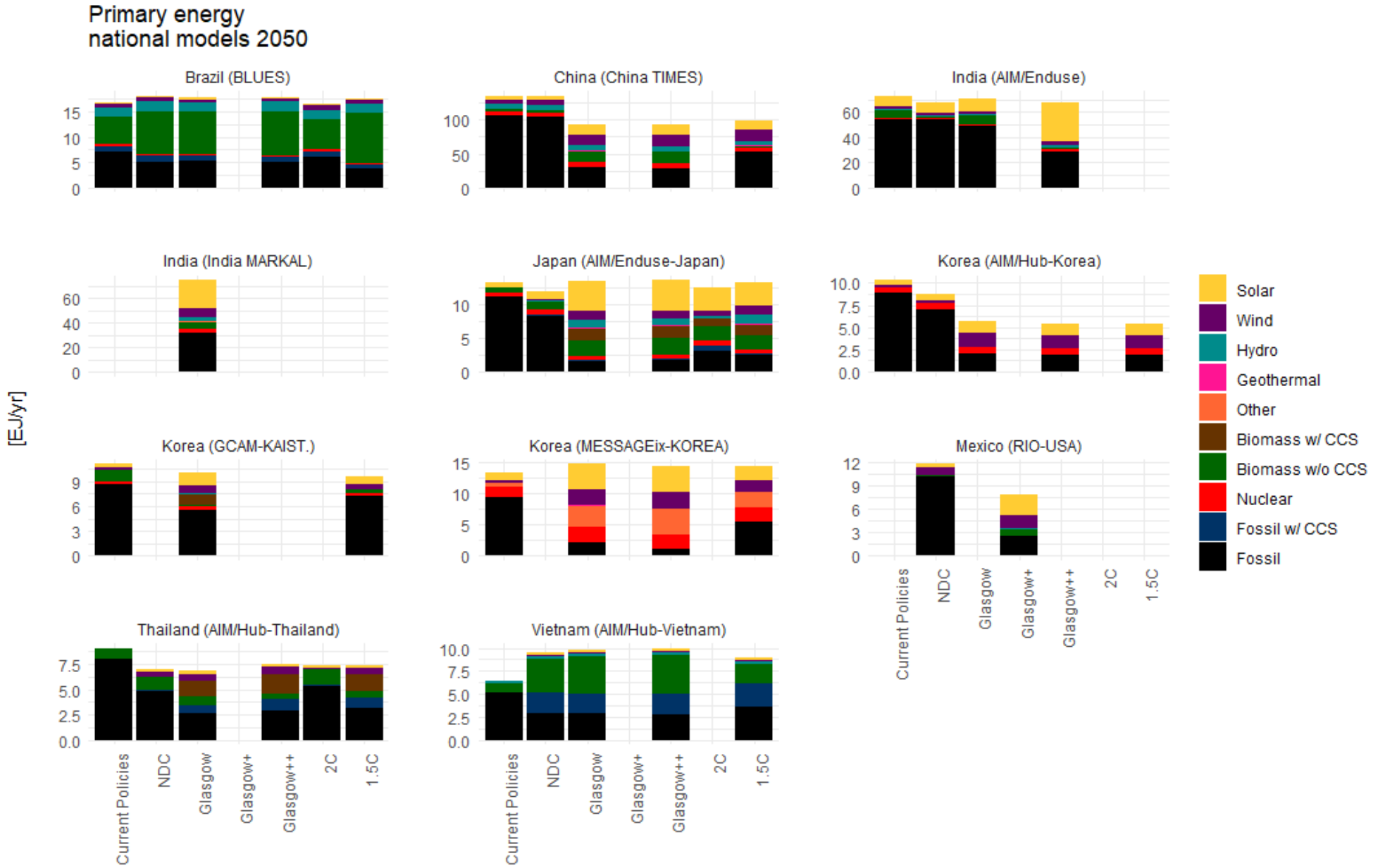


Different pathways

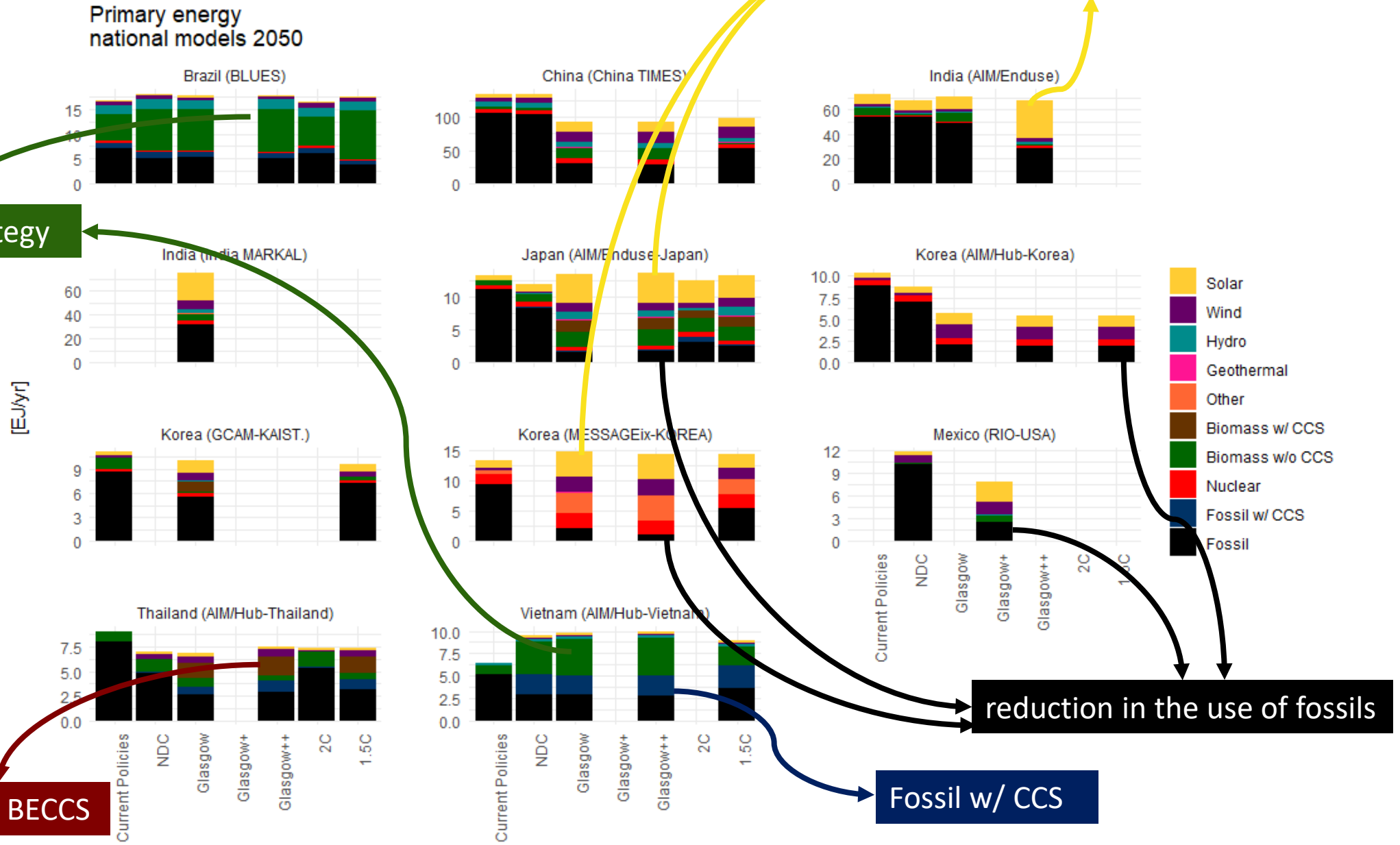
Different pathways



Different pathways



Different pathways



expanding the use of renewables

Biomass strategy

reduction in the use of fossils

Fossil w/ CCS

Rely on BECCS

Closing the gap

- **None current policies come close to the Paris goals.** At best, current policies stabilize greenhouse gas emissions, whereas a deep cut is needed.
- Some existing **NDCs** reach emission values in 2050 close to the observed by Paris Goal scenarios, such as **Brazil and Vietnam**, but neither them have a satisfactory **cumulative carbon budget**
- **Recent net-zero targets are a big step forward.** For some countries these pledges, would bring their **emissions even lower** than the optimal global cost-optimal, it is the case of **China and Korea**.

Closing the gap

- **Different strategies are indicated by each country**
- **Brazil** reduces its emission based on specially **land use mitigation** strategy.
- **Other** analyzed **countries** rely on **energy transition** measures
- When it comes to energy development it is possible to see different ways to reduce emissions:
  - Fossil fuel phase-out → China, Mexico and Japan, but all countries do it with different intensities
  - Biomass → Brazil and Vietnam
  - Renewables → India, Japan and Korea
  - CCS → Vietnam
  - BECCS → Thailand

Closing the gap

- **Different strategies are indicat[illegible] by ea[illegible] coun[illegible]**
- **Brazil** reduc[illegible] tegy.
- **Othe[illegible]**
- Whe[illegible] educe emiss[illegible]
  - Fossi[illegible] tensities
  - Biomass → Brazil
  - Renewables → India, Japan and Ko[illegible]
  - CCS → Vietnam
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The understanding of the **best strategy** that might be adopted by **each country** in order to reduce their carbon emissions and fulfill the Paris Agreements expectations is crucial to **promote and incentivize the correct sectors** and measures.

Thank you!

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More info can be found at:

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