



## **A blockchain for future international carbon markets Internationally Transferred Mitigation Outcomes (ITMO)**

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## Climate Ledger Initiative (CLI)

Mission: to accelerate the momentum for climate action under the Paris Agreement by fostering the use of the emerging blockchain technology.

Climate Ledger Initiative's activities focus on three parallel tracks:

- **Research track**
- **Innovation use cases**
- **Innovation call-outs**

The Climate Ledger Initiative is supported by the Government of Switzerland, the government of Liechtenstein, the LIFE Climate Foundation and EU's Climate-KiC.

The Climate Ledger Initiative is jointly operated by: Cleantech21, LIFE Climate Foundation, INFRAS and the Gold Standard Foundation.

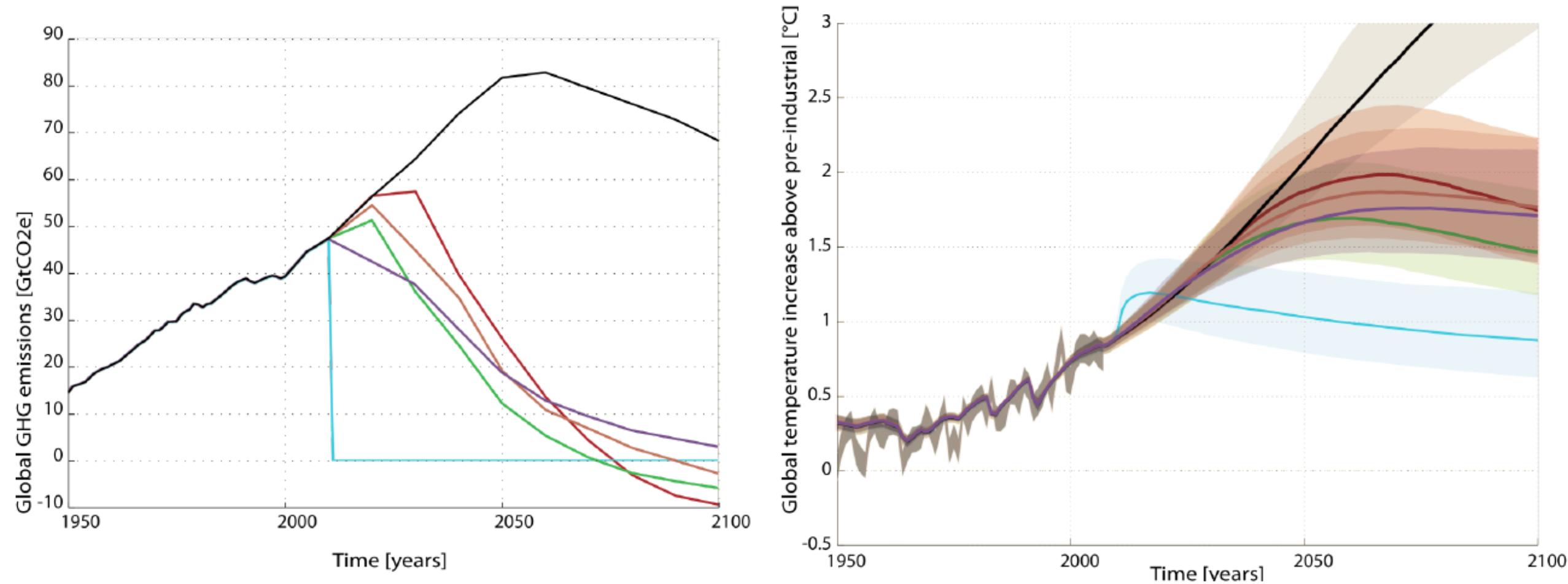
## Content

- Scale of required reductions in greenhouse gas emissions for  $< 2^{\circ}\text{C}$
- The Paris Agreement
- Emerging landscape of heterogeneous carbon markets
- Status of negotiations of markets
- Need for international transaction log for ITMOs

## Emissions – required trajectories

- Operating in a blockchain network **fosters cooperation and collaboration**
- Blockchains are created by miners/validators, by adding new blocks (**transparent audit trails**)
- The technology is decentralized, fostering **enhanced safety and reliability for network participants**
- Blockchains offer **enhanced data security** (all processes/new records are checked)
- Blockchains may contain entire programs (“**smart contracts**”)

# Emissions – required level of mitigation action to stay below +2°C

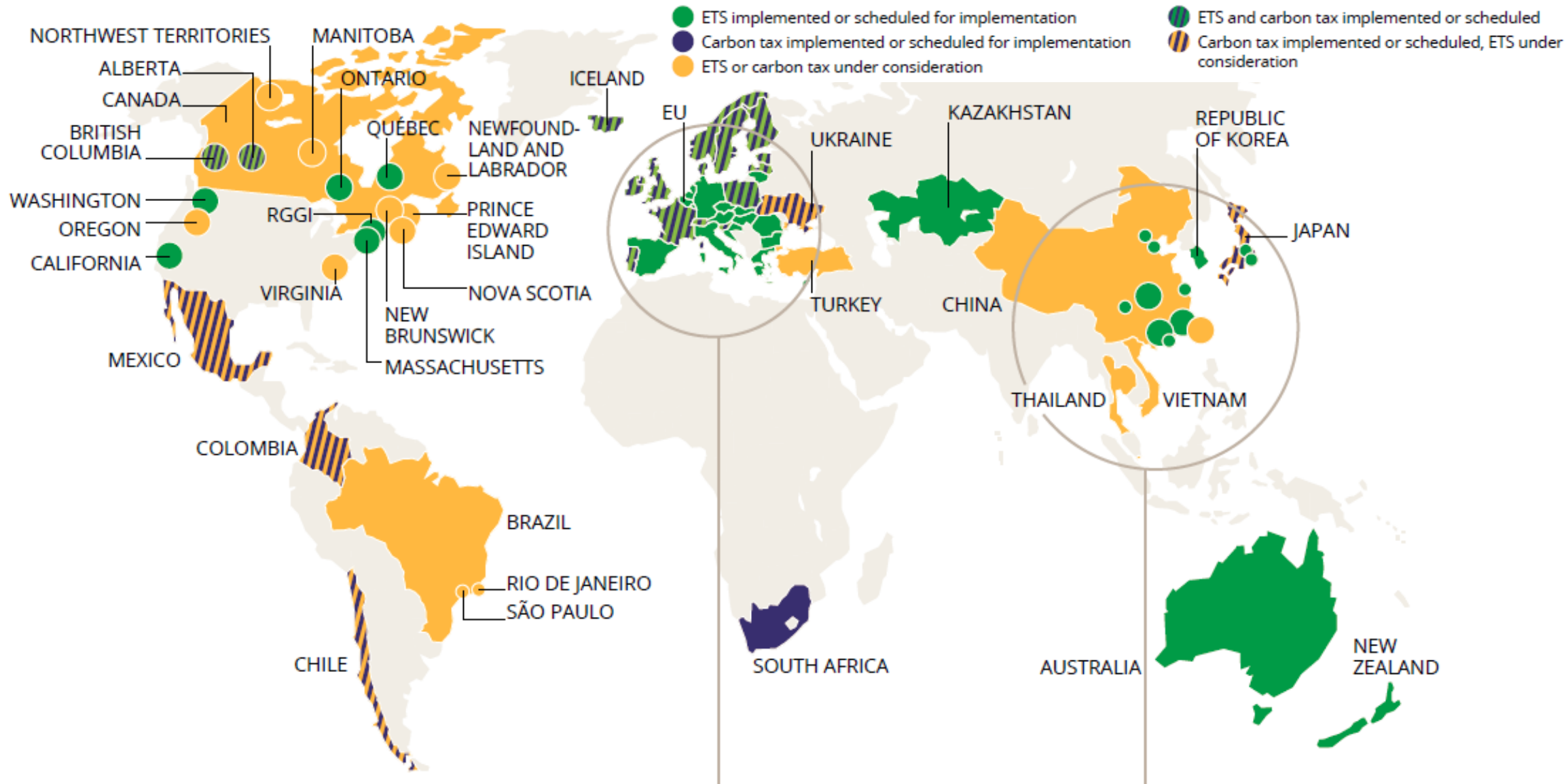


**Figure 2** Left: considered pathways for global GHG emissions excluding LULUCF (**Reference**, **Climate commitment**, **Optimal**, **Pledges**, **Delayed non-Annex I**, **1.5°C target** – see Table 1). Right: Resulting probabilistic temperature projections for each of the pathways based on MAGICC model showing median and “likely” (66%) probability ranges.

**Paris Agreement** – all countries reduce emissions to reach 2°C target  
De-centralized, bottom-up approach, transparency framework

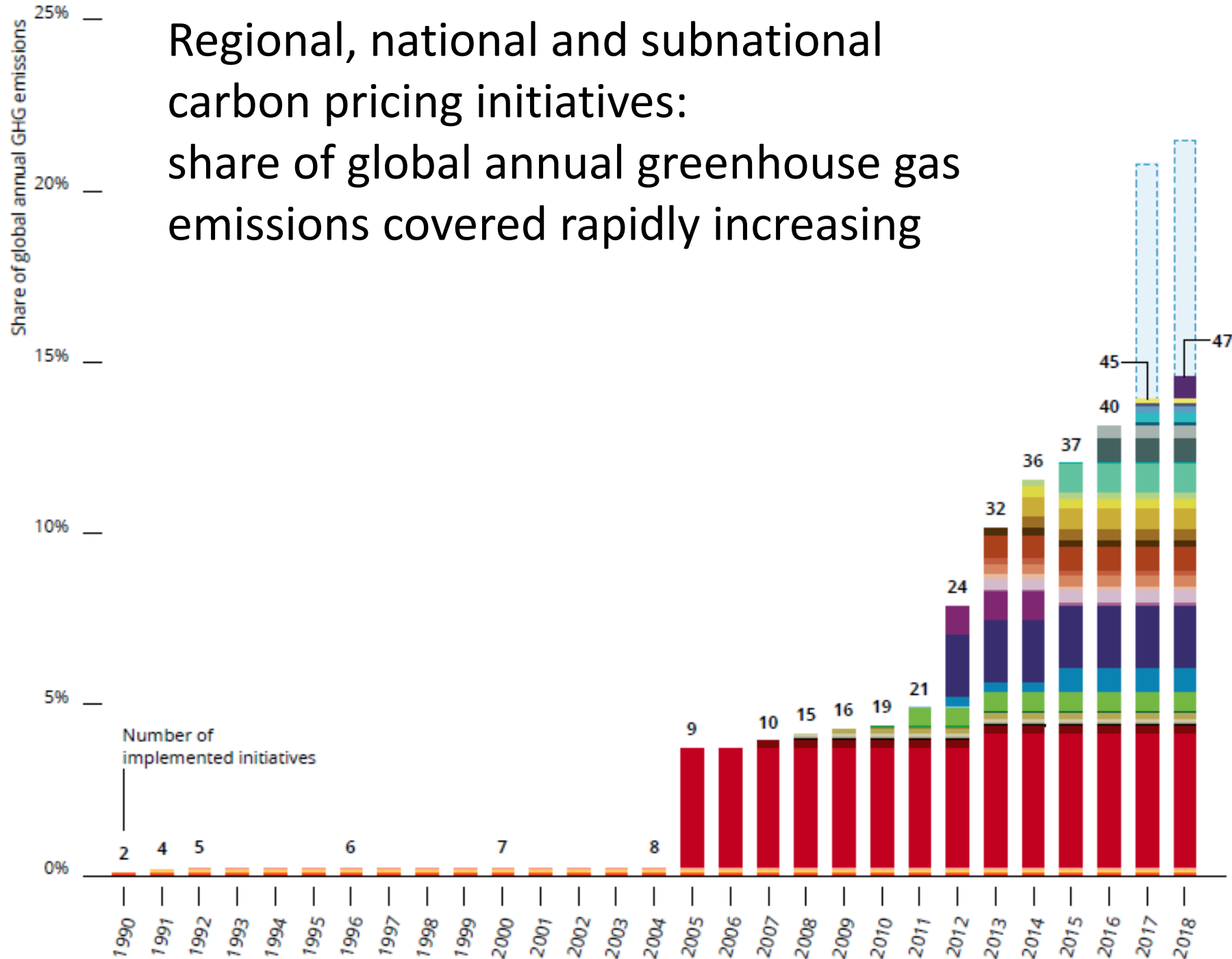


# Carbon markets – an evolving heterogenous landscape



Source: State and trends of the carbon markets 2017. The World Bank.

# Regional, national and subnational carbon pricing initiatives: share of global annual greenhouse gas emissions covered rapidly increasing



Source: State and trends of the carbon markets  
2017. The World Bank.

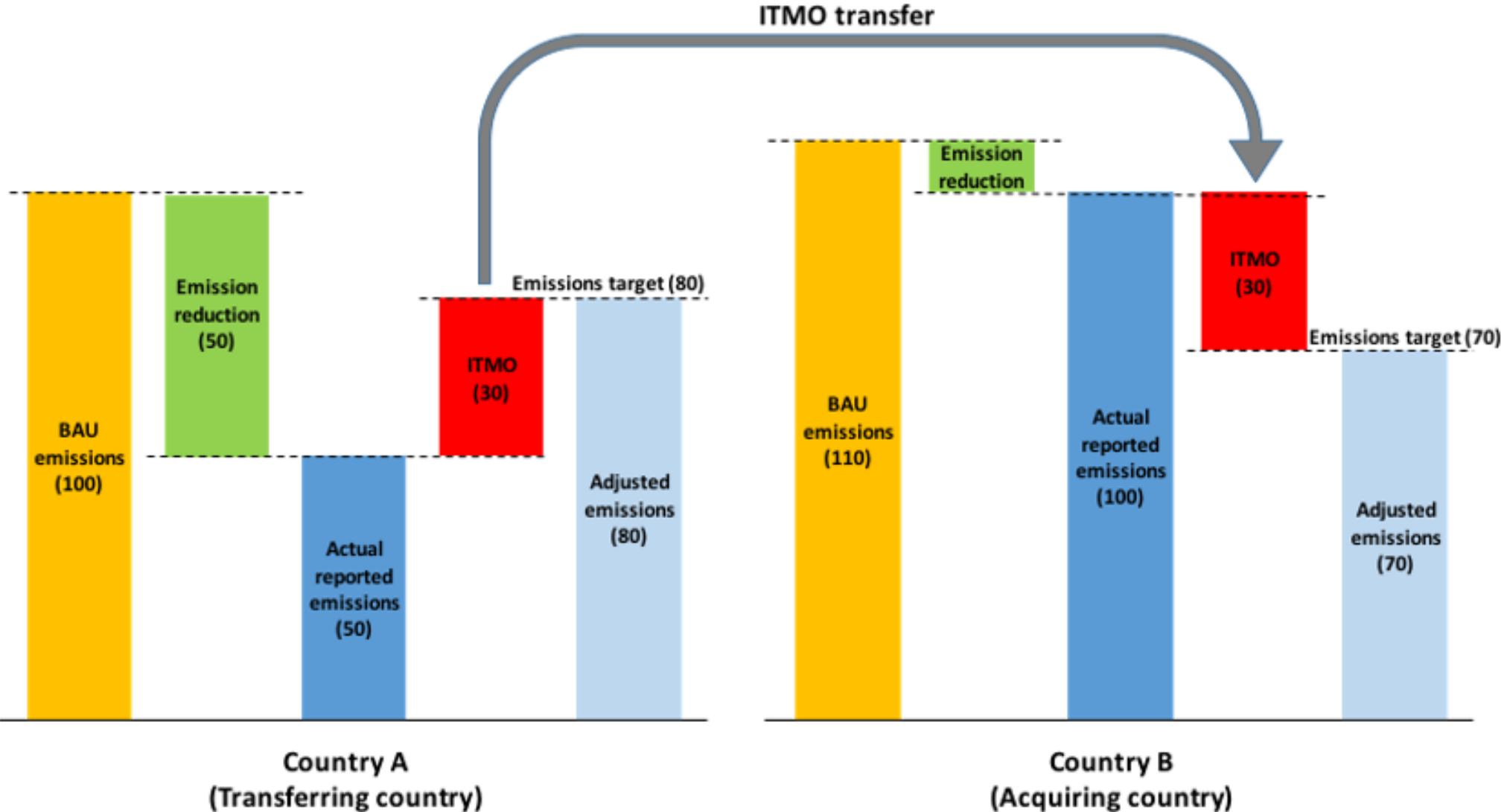


## Historic achievement of Paris Agreement: *all* countries included

- New: **all countries** define their emissions target
- **High ambition** in emission reductions required – a need to reduce emissions where the potential is high and costs are low
- **Market approach with international transfer of emission reductions** is key to raise ambitions.
- For international transfer of units, you need one or several **bookkeeping systems** (International Transaction Log)
- A transfer of mitigation units (ITMOs) from country A to B: keeping track of transfers

# Tracking international transfers of ITMOs

No double counting: emission reduction unit should only be counted once



Source: Schneider, Fussler et al. 2017: Robust Accounting of International Transfers under Article 6 of the Paris Agreement

**Draft elements for SBSTA agenda item 11 (a)****Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement****Informal note by the co-chairs**

*These draft elements have been prepared by the co-chairs of the negotiations on this agenda item under their own responsibility, on the basis of the views that Parties have submitted and discussions in the round table. These elements are preliminary and should not be considered as final in any way; they are offered as a basis for work and do not prevent Parties from expressing their views at any time. For all draft elements, it is understood that there may be an alternative that there should be no such draft element. It is recognized that the outcome of deliberations on this item will form part of the overall outcome under the Paris Agreement work programme.*

*Elements of the guidance***1. PRINCIPLES**

Potential element a: List of principles

Potential element b: No principles

**2. DEFINITIONS****A. Definition of an internationally transferred mitigation outcome (ITMO)**

Potential element a: Defined by the CMA

Potential sub-element (a): Measured in tonnes of CO<sub>2</sub>e

Source: [http://unfccc.int/files/meetings/bonn\\_nov\\_2017/in-session/application/pdf/11a\\_informal\\_note.pdf](http://unfccc.int/files/meetings/bonn_nov_2017/in-session/application/pdf/11a_informal_note.pdf)

Required: a blockchain based international transaction log that works in a very heterogenous landscape of mitigation markets

**D. Reporting by a Party issuing/creating mitigation outcomes**

**(a) Infrastructure for tracking issuance/creation of ITMOs**

Potential element a: National registry connection to an international transaction log

Potential element b: National registry plus standard reporting table

Potential element c: Standard reporting table

**(b) Timing of reporting**

## Blockchain based international transaction log - challenge

- Need for a de-centralized, trusted international transaction log
- Transaction log should be able to track transfers between very different systems (need for “intelligent” transfers)
- Users such as governmental focal points, but also private institutions such as Gold Standard, VCS, etc. – bottom-up approach very suitable
- Important: trust, scalability, power consumption, dynamic rules, connectivity, government
  
- Negotiators are shaping the rules right now and have no technical solution yet
- Interest from countries to use blockchain technology

Thank you.



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