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GHG and competitiveness
The Aluminium case

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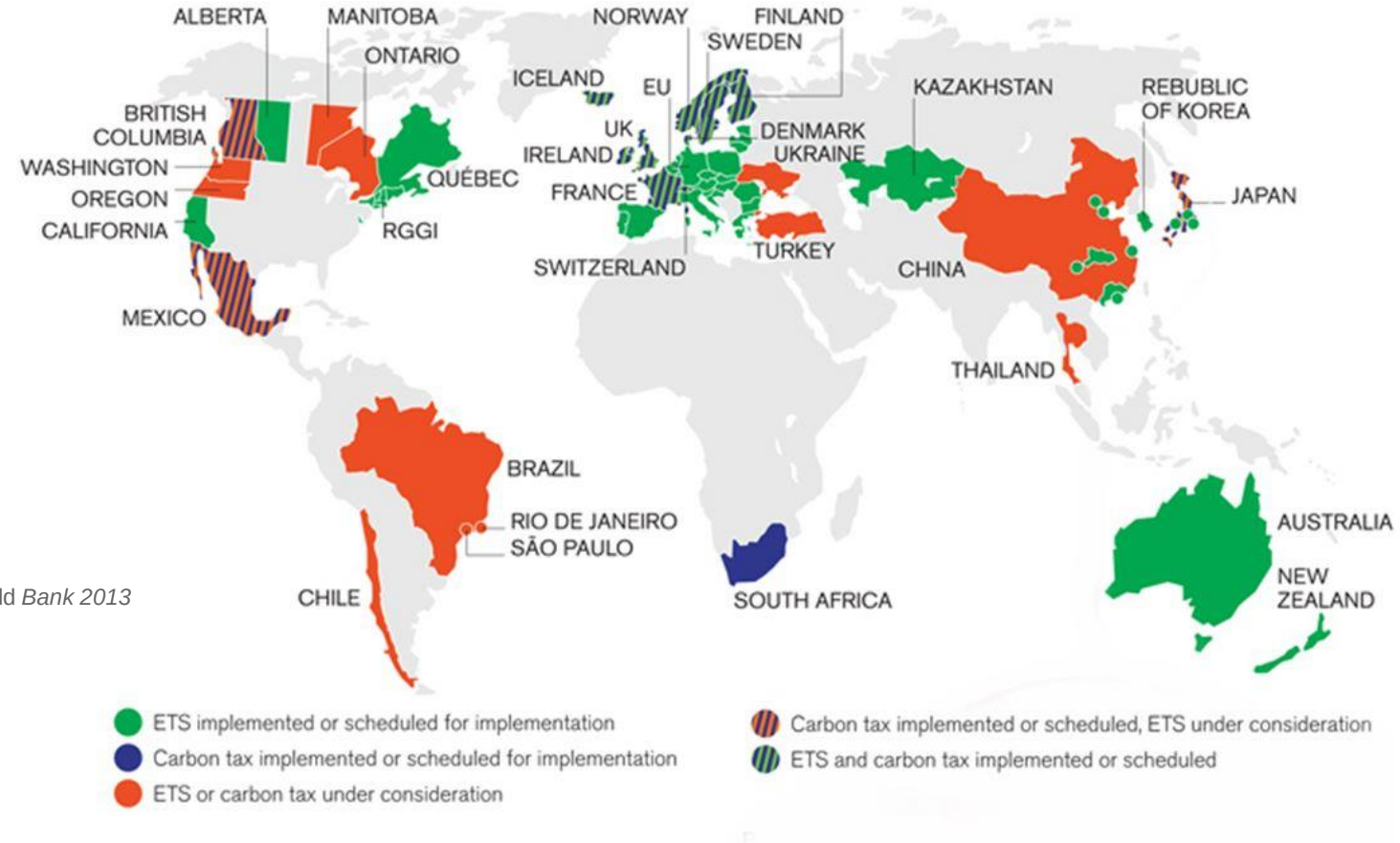
A clear dynamic to rule the GHG emissions

By 2020, around two thirds of Industrial and Energy GHG Emissions will be in jurisdictions with a price or cap (up from 1% in 2004)



Source: World *Bank 2013*

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Transitional assistance to protect Industries

Emission Intensive Trade Exposed (EITE) and Energy Intensive Industries (EII) still benefit from a protected-sector status in the main cap-and-trade schemes

- **Based on the carbon leakage concept**
  - Potential consequence of competitiveness loss
    - ✓ Various criteria used to properly define the considered sectors.

- **Various mechanisms in the different schemes**
  - Free allocation
    - ✓ Typically related to benchmarks on emission intensity and production level.
  - Tax thresholds
    - ✓ Tax only has to be paid on emissions above a defined level.
  - Early credits
    - ✓ Used to recognize significant reductions made before the formal scheme implementation.
  - Compensation for Indirect emissions
    - ✓ Key for EII when Energy sector is impacted by the GHG price.
    - ✓ Different forms considered (monetary payments, revenue return, additional free allowances)

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Illustrative example of Aluminium

Cumulating EITE, EII and Trade intensity, Aluminium is a interesting case to consider the link between GHG management and competitiveness

- **Huge impact of any GHG schemes…**
  - High level of direct emissions
    - ✓ Ca. 2,6 t $CO_{2\ eq}$/t Al from the whole process.
  - High electro-intensity of the smelting process
    - ✓ Ca. 14 MWh used to produce 1 t of liquid metal.

- **… in a context of international Trade intensity…**
  - Metal price defined through London Metal Exchange
    - ✓ No CO_2 signal considered in this index.
  - Massive transfer of production to China
    - ✓ Representing now 50% of the global production and a large portion of the forecasted growth.

- **… leading to potential carbon leakage !**
  - Chinese production essentially based on Coal.
    - ✓ 15,3 t $CO_{2\ eq}$/t Al vs. 7,4 RoW.

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Transitional assistance: key for competitiveness

- **To prevent carbon leakage**
  - Benefit from low carbon footprint of Electricity production
    - ✓ Hydro and Nuclear.

- **To protect the primary production and the whole value chain**
  - Free allocation as a basic tool
    - ✓ Using realistic and updated benchmarks.
  - Dynamic allocation
    - ✓ Key to support economic recovery and reflect production variations.
  - Compensation for Indirect emissions
    - ✓ Important for electro-intensive industries.
    - ✓ Need to be based on harmonized approach in a given region.

- **To support low-C technology development**
  - Based on revenue from carbon pricing
    - ✓ Clear support for investment in “green” areas.