

# ESG Update

## Decoding carbon pricing dynamics: What drives the differences

Key takeaways from S&P Global's carbon markets webinar

Carbon pricing remains a recurring investor question, largely due to the absence of a single, globally unified price. Instead, markets are fragmented across jurisdictions and mechanisms, with material price differences. Drawing on insights from an S&P Global webinar, this note outlines why some credits trade at a premium while others remain discounted, highlighting the key drivers of dispersion across carbon instruments: **(i)** policy frameworks; **(ii)** compliance-driven demand; **(iii)** regulatory and macro signals; and **(iv)** credit quality.

**A heterogeneous, policy-driven market.** According to World Bank data, there are 80 carbon pricing mechanisms worldwide (37 Emissions and Trading Systems<sup>1</sup> and 43 carbon taxes), with an average price of US\$79.5/tCO<sub>2</sub>e (ranging from US\$0.5/tCO<sub>2</sub>e to US\$158.8/tCO<sub>2</sub>e) – see next pg. for key compliance schemes globally. S&P Global identifies four main drivers of price dispersion:

**(i) Policy anchors pricing.** Carbon prices are primarily determined by policy frameworks (such as caps, penalties and allocation rules), which set the reference price level. Credits linked to compliance regimes typically trade at a premium to voluntary credits because they either **(i)** count toward legally binding obligations (e.g., *cap-and-trade systems*); or **(ii)** are benchmarked to a known compliance cost (e.g., *carbon taxes or penalty levels*).

**(ii) Compliance demand caps price upside.** In the short term, demand in regulated markets is relatively inelastic: regulated entities must acquire sufficient credits to meet obligations, while emissions reductions take time and non-compliance carries penalties. However, willingness to pay is bounded. According to S&P, companies are generally willing to pay up to, but not above, the cost of compliance. Over time, prices tend to converge toward the higher of **(i)** the marginal abatement cost (*when it becomes cheaper to reduce emissions than to buy credits*) or **(ii)** the applicable penalty or tax level (*when paying the penalty becomes the economic alternative*). Once compliance obligations are met, incremental demand fades, limiting further price upside.

**(iii) Policy and macro drive volatility.** Compliance markets are highly sensitive to regulatory developments and broader macroeconomic conditions. Overall, recent volatility reflects: **(i)** reform debates within existing ETSs (including changes to caps, allocation rules, market-stability mechanisms, and timelines); and **(ii)** geopolitical and macro risks that influence energy security priorities and industrial activity.

**(iv) Quality drives dispersion in voluntary markets.** In cap-and-trade systems, quality is embedded at the system level rather than assessed on a credit-by-credit basis. Regulators impose stringent methodologies and eligibility criteria, ensuring a consistent minimum quality threshold for compliance units. In contrast, voluntary markets lack a unified regulatory baseline, so project-level attributes (methodology, vintage, additionality, and ratings) play a larger role in pricing, with particular emphasis on project type. According to S&P Global: **(i)** removal credits (ARR, direct air capture) command a premium given stronger perceptions of permanence and measurability (ranging from US\$14–35/mtCO<sub>2</sub>e); while **(ii)** avoidance credits (renewable energy, REDD+) tend to trade at a discount (US\$0.5–13/mtCO<sub>2</sub>e), reflecting concerns around additionality and persistent oversupply.

**Marcella Ungaretti**

Research ESG Head  
 marcella.ungaretti@xpi.com.br

**Luiza Aguiar**

Research ESG Analyst  
 luiza.aguiar@xpi.com.br

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Figure 01: Major emissions trading systems and carbon tax schemes exhibit significant price dispersion

Market/ Jurisdiction	Status	Sectors covered	Share of jurisdiction's GHG emissions covered	Price reference 2025 [USD/tCO <sub>2</sub> e]
China National Emission Trading System (ETS)	In operation since Jan/2021	Power, heavy industry, aviation, maritime shipping	51%	~12
European Union Emission Trading System (ETS)	In operation since Jan/2005	Power, heavy industry, aviation, maritime shipping	60%	~78
CA-QC Cap-and-Trade (California + Québec)	In operation since Jan/2013	Power, industry, transport fuels, natural gas	76%	~35
Regional Greenhouse Gas Initiative (RGGI) (10 US Northeastern states <sup>1</sup> )	In operation since Jan/2009	Power sector (fossil-fuel plants ≥25 MW)	14%	~20
Indonesia Emission Trading System (ETS)	In operation since Feb/2023	Power sector (coal-fired plants). Industry expansion planned	24%	~2
Chile carbon tax	In operation since 2017	Power, industry, mining and extractives	55%	5
New Zealand Emission Trading System (ETS)	In operation since Jan/2008	Power, industry, transport, forestry, waste. Excludes agriculture	44%	~30
Austria Emission Trading System (ETS)	In operation since Oct/2022	Transport and building fuels (upstream). Complementary to EU ETS	36%	~52
Canada Federal OBPS	In operation since Jan/2019	Power and industry	3%	~80
Brazil (SBCE) Emission Trading System (ETS)	Under development. Expected for 2030 [TBC]	Emitters >10–25k tCO <sub>2</sub> e/yr. Excludes agriculture	TBD	TBD
Singapore carbon tax	In operation since 2019	Power, industry, waste, mining and extractives	71%	19

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