



Deep Decarbonization Pathways

DDP Insights

Brazil : balancing energy transition, land use management and economic transformation for climate ambition



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Brazil: Insights on national climate action

Ten years after the Paris Agreement, Brazil's climate transition presents a distinctive picture. Unlike most major economies, where energy dominates greenhouse gas emissions, Brazil's emissions profile is shaped primarily by land use, agriculture, and forests. At the same time, the country already benefits from one of the world's cleanest electricity systems, creating unique opportunities—and challenges—for achieving net zero.

This edition of DDP Insights explores the Brazil chapter of the [DDP 2025 report. A Decade of National Climate Action: Stocktake and the Road Ahead](#), examining how Brazil's transition is increasingly shaped by the interaction between climate policy, economic development, and long-term planning.

👉 [Read the full Brazil chapter](#)

👉 [Read the one-pager summary](#)

A transition shaped by forests as much as energy

Brazil's emissions profile differs significantly from the global average.

As of 2022, around 70% of national greenhouse gas emissions came from agriculture, forestry and other land use (AFOLU), with 39.5% from land-use change and forestry and 30.5% from agriculture. By comparison, energy accounted for just 20.5% of emissions. Nearly 40% of Brazil's emissions are non-CO₂ gases, reflecting the importance of agriculture and livestock.

This means that reducing emissions depends not only on expanding clean energy, but also on tackling deforestation, restoring forests, and transforming agricultural practices.

Forests remain central to Brazil's transition

Land use and agriculture dominate Brazil's emissions profile, accounting for around 70% of national GHG emissions in 2022. This makes tackling deforestation, restoring forests, and reducing agricultural emissions central to reaching net zero.

There has been progress: annual deforestation in the Amazon has fallen by around 40% over the last three years, supported by stronger enforcement and economic instruments. But illegal deforestation, slow progress on forest restoration, and emissions from the beef supply chain remain major challenges.

A strong renewable base

Brazil already has a relatively clean energy system, with renewables providing around 50% of its overall energy mix and 88% of electricity generation. Wind and solar are expanding rapidly, while biofuels remain a major part of the transition.

Biodiesel production and use nearly tripled, from 3.2 billion liters in 2014 to 8.8 billion liters in 2024, alongside continued ethanol production and the development of advanced biofuels for sectors such as aviation and maritime transport.

The next challenge is integrating growing renewable electricity through greater investment in transmission, storage, and grid flexibility, while avoiding long-term fossil fuel lock-in from new oil and gas development.

Long-term planning is becoming more central

Brazil has progressively strengthened its long-term climate ambitions, confirming a 2050 net-zero target in its updated NDCs.

Alongside these commitments, Brazil has begun developing a broader vision for economic transformation. The Ecological Transformation Plan, launched at COP29, places climate action within a wider development agenda built around six priorities, including sustainable finance, bioeconomy, energy transition, circular economy, green infrastructure, and technological innovation.

Another major area of progress has been forest protection. Since 2023, a renewed combination of environmental enforcement and economic incentives has reduced annual deforestation in the Amazon by around 40%, demonstrating the continued effectiveness of combining regulatory measures with financial instruments.

Harder-to-transform sectors

Progress is less straightforward in **industry and transport**. Brazil is developing policies to support low-carbon industry, hydrogen, sustainable vehicles, and electric mobility, but these sectors have yet to see the scale of transformation already underway in renewable electricity and biofuels.

This highlights a wider challenge for Brazil: extending the transition beyond areas where it already has significant advantages and driving structural change across the wider economy.

The next phase will require overcoming structural barriers

Despite this progress, significant challenges remain. Continued illegal deforestation, slow implementation of forest restoration requirements, and limited progress in reducing emissions from the beef production chain remain major obstacles to achieving net zero.

In the energy sector, Brazil's rapid growth in wind and solar generation has exposed new challenges around electricity system flexibility. The report argues that investment in transmission infrastructure, storage, and grid management will be essential to fully integrate growing renewable capacity.

At the same time, Brazil faces competing pressures around oil and gas development. While oil exports provide significant economic benefits, expanding fossil fuel infrastructure risks creating long-term carbon lock-in that could slow the transition to a net-zero economy.

What this tells us

Brazil's experience shows that the transition to net zero is not simply an energy challenge.

For Brazil, climate action depends equally on protecting forests, transforming land use, maintaining momentum in clean energy, and aligning economic development with long-term climate objectives.

The chapter also reinforces a broader lesson reflected throughout the DDP reports: long-term analysis helps connect today's policy choices with tomorrow's development outcomes. By combining climate ambition with sectoral planning, investment strategies, and economic transformation, countries can build transition pathways that are grounded in their own national circumstances.

As Brazil prepares its Long-Term Low Emissions Development Strategy, the challenge will be to translate this long-term vision into coordinated action across forests, energy, industry, and agriculture, ensuring that short-term decisions remain consistent with the country's pathway to net zero.

About DDP Insights

DDP Insights builds on the work of the Deep Decarbonization Pathways (DDP) Initiative, drawing on country-driven analysis to explore how national climate goals translate into real-world transformation.



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