

From NDC to Climate Plan: How Brazil's Paris Agreement Targets Can Guide Sectoral Strategies and Plans

In November 2024, the Brazilian Government submitted its Nationally Determined Contribution (NDC) featuring mitigation targets for 2035 and commitments focused on adaptation, nature protection and regeneration, sustainable development, governance, and transparency. The complete document, 44 pages in English, serves as the foundation for sectoral plans and the government's future Mitigation Strategie-

gy of the National Climate Change Plan.

To promote a clear understanding of this NDC's content and implications, we have prepared a synthesis of the document, highlighting its key aspects related to ambition, implementation, transparency, and governance. Following this, we present an analysis in a question-and-answer format, exploring how to interpret, implement, and, when necessary, enhance Brazil's commitments.

X-RAY: AMBITION, IMPLEMENTATION, TRANSPARENCY AND GOVERNANCE

1. AMBITION

What the NDC offers for implementing Paris Agreement objectives

Mitigation

The Brazilian targets cover all gases and the entire economy.

Brazil has established a target to reduce its net greenhouse gas emissions by 59 to 67 percent below 2005 levels by 2035, which corresponds in absolute terms to an emissions level of 1.05 to 0.85 GtCO_{2e}, according to the most recent inventory data. This value may vary if inventory adjustments occur.

In absolute terms, Brazil's current mitigation targets (according to the most recent inventory) translate as follows:

Mitigation targets

SHORT TERM

LONG TERM

NO SET TIMEFRAME

2025

Achieve an emission level of 1.32 GtCO_{2e} (GWP AR5)

2030

Achieve an emission level of 1.2 GtCO_{2e} (GWP AR5)

2035

Achieve an emission level between 1.05 Giga and 850 Mega tCO_{2e} (GWP AR5)

NOTE *The NDC indicates that 1.05 GtCO_{2e} will be the valid reference for evaluating the progress and ambition of future Brazilian contributions and also for market mechanism purposes. The document also expresses the intention to seek a greater reduction in emissions, in the range of up to 850 million tons of CO_{2e}, described as a band, in order to create space for trading these potential results in the international market*

2050

Climate neutrality

Brazil commits to contribute to global efforts under paragraph 28 of the GST, which addresses “transitioning away from fossil fuels in energy systems in a just, orderly and equitable manner, accelerating action in this critical decade, to achieve net zero emissions by 2050, in line with science.”

The Climate Plan will provide details for electricity generation expansion and, in the medium and long term, the gradual replacement of fossil fuels with electrification solutions and advanced biofuels, as well as the expansion of biofuel production associated with carbon capture and storage to meet the demand for negative emissions

Adaptation

Alignment of national actions with the Global Goal on Adaptation (GGA): increase adaptive capacity, strengthen resilience and reduce vulnerability to climate change.

Nature/Mitigation + Adaptation

Although the concept of “zero deforestation” is not yet completely clear, Brazil's NDC appears to focus efforts on two fronts: eliminating illegal deforestation through enhanced command & control measures, along with land regulation measures that promote good territorial governance; and discouraging “authorizable” deforestation under law, which should occur through large-scale economic incentives for forest protection, and through the combination of assisted regeneration and induced restoration, with emphasis on specific plans for all biomes and macro-policies such as PPCDAm, PPCerrado, and Planaveg

2. IMPLEMENTATION

Basis for the NDC implementation

The government will rely on the National Climate Change Plan (Climate Plan), aligned with the Ecological Transformation Pact between the Three Powers, to guide policies and actions.

Plano Clima or Climate Plan, regulated by CIM Resolution No. 3 of September 14, 2023, including three pillars:

1 National Adaptation Strategy:
Composed of 16 sectoral adaptation plans; guides policies to increase the resilience of populations, cities, territories, and infrastructures

2 National Mitigation Strategy:
With 7 sectoral mitigation plans; guides policies for the transition to a net-zero emissions economy by 2050

3 Cross-cutting Strategy:
Addresses themes common to both axes, such as just transition; socio-environmental impacts; means of implementation; education, training, research, development, and innovation; and monitoring, management, evaluation, and transparency

What are the incentives and means of implementation for the NDC?

In international terms, the government has signaled interest in using cooperation instruments provided for in Article 6 of the

Paris Agreement.

Carbon market mechanisms:

The NDC provides for the international transfer of mitigation results (ITMOs) and carbon credits (under Article 6 of the Paris Agreement, which deals with cooperation instruments) generated in Brazilian territory, if emissions are reduced below the level of 1.05 GtCO_{2e}.

In domestic terms, the government will rely on the Climate Plan and the commitments and instruments of the National Pact for Ecological Transformation, with the intention of turning the NDC into a platform for investments in Brazil's decarbonization and adaptation.

National Pact for Ecological Transformation, regulated by Decree 12,223 of October 14, 2024.

Commitments:

Prioritize environmental legislation, Promote land regulation and territory protection, Accelerate just energy transition and incentivize clean technologies, Support economic activities aligned with environmental conservation, Invest in low-carbon research and innovation, Ensure economic competitiveness with low carbon emissions, Develop climate adaptation strategies, Ensure speed and legal security in environmental matters.

Instruments:

- 1 Sustainable Sovereign Bonds**
- 2 Climate Fund**
- 3 Eco Invest Brasil Program**
- 4 Brazilian Sustainable Taxonomy**
- 5 Tax Reform**

- 6 **Brazil Climate Investment and Ecological Transformation Platform (BIP)**
- 7 **Brazilian Emissions Trading System (SBCE)**
- 8 **Amazon Fund**
- 9 **Tropical Forest Forever Fund (TFFF)**
- 10 **National Bank for Economic and Social Development (BNDES) Programs**

What reforms will be implemented to support the NDC?

The government indicates that the National Policy on Climate Change is under review and indicated that it will incorporate, for the first time in its legal framework, the concepts of just transition and climate justice.

National Policy on Climate Change (PNMC), established by Law No. 12,187 of December 29, 2009, provides the legal framework for addressing climate change in Brazil, defining principles, objectives, guidelines, and instruments to promote greenhouse gas emissions mitigation, adaptation to climate impacts, and transition to a sustainable development model.

Climate justice is an approach that combats social, racial, and gender inequalities, promoting human rights, especially those of indigenous peoples and traditional communities, in addressing the climate crisis. Brazil seeks a transition that balances economic development and social protection, reducing impacts through broad dialogue and social participation. This includes valuing traditional knowledge, local cultures, and promoting climate co-benefits with positive socioeconomic impacts.

What the NDC details about sectoral actions in the National Mitigation Policy and related policies?

Nature/land use and forests

Commitment to zero deforestation, through eliminating illegal deforestation and compensating for legal suppression of native vegetation and its resulting greenhouse gas emissions; encouraging large-scale restoration of native vegetation by strengthening command and control measures and establishing positive incentives to make the maintenance and restoration of native vegetation economically advantageous in private rural properties.

Related policies:

- 1 **Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)**
- 2 **Action Plan for Prevention and Control of Deforestation in the Cerrado Biome (PPCerrado)**
- 3 **Action Plans for Prevention and Control of Deforestation in the Atlantic Forest, Pantanal, Caatinga, and Pampa Biomes**
- 4 **Marine Spatial Planning and Integrated Coastal Zone Management, plus ProMangue and ProCoral programs**

- 5 **National REDD+ Strategy (ENREDD+)**
- 6 **Land Regularization Law (Law No. 11,952/2009 and Decree No. 10,592/2020)**
- 7 **National Plan for Native Vegetation Recovery (Planaveg)**
- 8 **National Policy for Territorial and Environmental Management of Indigenous Lands (PNGATI)**
- 9 **Forest Code**
- 10 **National Bioeconomy Strategy**
- 11 **National Policy for Territorial and Environmental Management of Indigenous Lands (PNGATI)**

Agriculture

Sustainably expand agricultural production, ensuring food security and energy security through sustainable biofuel production, based on two fundamental transformations: (i) Converting new areas primarily from already degraded pastures, expanding cultivation area with integrated systems such as crop-livestock and crop-livestock-forest integration; and (ii) Productivity gains in agricultural production systems through greater migration to integrated systems and increase in high-productivity systems.

Related policies:

- 1 **Climate Change Adaptation and Low Carbon Emissions Plan in Agriculture (ABC+ Plan)**
- 2 **National Program for Strengthening Family Agriculture (Pronaf)**
- 3 **Brazil Sociobiodiversity Bioeconomy Program**
- 4 **National Bioinputs Program**
- 5 **National Program for Converting Degraded Pastures into Sustainable Agricultural and Forest Production Systems (PNCPPD)**

- 6 **National Energy Efficiency Plan (PNEF)**

Energy

Expand electricity generation with increased participation of clean technologies and sources. The country will also continue to invest in transmission network expansion and modernization to increase supply security and integrate intermittent renewable sources, such as wind and solar, through the Transmission Auction and Concession Plan.

Additionally, it focuses on internalizing technologies such as stationary batteries and other storage solutions, enabled by Capacity Reserve Auctions since 2021. In the medium and long term, it will seek gradual replacement of fossil fuels with electrification solutions and advanced biofuels – including Sustainable Aviation Fuels – as well as expanding biofuel production associated with carbon capture and storage to meet the demand for negative greenhouse gas emissions.

Brazil will also prioritize expanding energy efficiency actions, developing markets for low-carbon hydrogen as an alternative to fossil fuels, and enabling advanced technologies for CO₂ removal from the atmosphere.

Related policies:

- 1 Ten-Year Energy Plans (PDEs)
- 2 National Energy Plan (PNE) 2050
- 3 National Energy Transition Plan (Plante)
- 4 National Biofuels Program (RenovaBio)
- 5 Future Fuel Program
- 6 National Hydrogen Program
- 7 Green Mobility Program–Mover
- 8 Low Carbon Hydrogen Development Program (PHBC)
- 9 Low Carbon Hydrogen Legal Framework (Law No. 14,948, August 2, 2024)
- 10 National Energy Policy (established by Law No. 9,478, August 6, 1997)
- 11 Amazon Energy Program (Decree No. 11,648, August 16, 2023)
- 12 Future Fuel Law (Law No. 14,993, October 8, 2024)
- 13 Brazilian Emissions Trading System
- 14 Legal framework and regulation of offshore wind energy production
- 15 Legal framework and regulation of low-emission hydrogen production

Transportation

Replacement of fossil fuels with electricity and biofuels. Electrification will be a strong trend in this sector, requiring technological advances for route adaptation and charging network expansion. In addition to electrification and biofuels, hydrogen use is anticipated by 2035 as an alternative in the transport sector, requiring investments in specific infrastructure.

Related policies:

- 1 **Future Fuel Law (Law No. 14,993, October 8, 2024)**
- 2 **According to the new NDC, for each subsector (Civil Aviation, Rail Transport, Road Transport, Maritime and Waterway Transport), Brazil has a set of specific instruments, involving regulatory agents and other bodies related to each transport category**

Cities and Urban Mobility

Actions for sustainable urban development, active mobility, and public transport improvement, aimed at reducing dependence on individual transport. In parallel, trends observed for urban mobility follow the logic of electrification and increased use of biofuels. In buildings, Brazil will seek advancement in terms of energy efficiency and evaluation of alternatives to LPG and natural gas for cooking, such as biomethane. Furthermore, the integration of sustainable urban development actions with nature-based solutions is a fundamental aspect for increasing the potential for greenhouse gas removals in Brazilian cities.

Related policies:

- 1 **Green and Resilient Cities Plan**

Waste

Reduction of methane emissions, combined with its capture and energy use with technologies such as anaerobic digestion with CH₄ capture, aerobic treatment, and replacement of rudimentary cesspits and other direct disposal methods with sewage treatment plants.

Related policies:

- 1 **National Basic Sanitation Policy**
- 2 **National Solid Waste Policy and its respective implementation plans**

Industry

Progressive replacement of fossil fuels with biofuels and electrification, gradual adoption of new technological routes for industrial processes with lower emissions, and additionally, the development of carbon capture technologies in certain industrial segments. National biomaterial production emerges as a mitigation solution, potentially also being a source of innovation and differentiation for national industry in the international context – for example, replacing fossil-based plastics with bioplastics, given their significant impact on reducing greenhouse gas emissions.

Related policies:

- 1 **New Brazil Industry Program**
- 2 **Brazilian Artificial Intelligence Plan for the period 2024 to 2028**

3. TRANSPARENCY AND GOVERNANCE

The new NDC provides for the following in transparency and governance:

- *Public participation and engagement with local communities and indigenous peoples, in a gender-sensitive manner*
- *Development of monitoring and transparency mechanisms that allow continuous analysis of the effectiveness of results and impacts of policy measures by independent agents*
- *Co-benefits of mitigation actions: biodiversity conservation, ecosystem services provision, air pollution reduction, job and income generation, reduction of social and regional inequalities, promotion of food security, energy security and water security, guaranteeing rights of traditional peoples and communities and indigenous peoples*
- *Biennial Transparency Reports (BTRs)*

The NDC will have the following Monitoring Systems

- ▶ Brazilian National Transparency System (DataClima+)
- ▶ National Emissions Registry System (SIRENE)
- ▶ National Sectoral Policy and Emissions Simulator (SINAPSE)
- ▶ National Rural Environmental Registry System (CAR)
- ▶ AdaptaBrasil Platform
- ▶ Technology Needs Assessment for Implementation of Climate Action Plans in Brazil (Technology Needs Assessment - TNANA_BRAZIL)
- ▶ Brazilian Industrial Research and Innovation Company (EMBRAPII)
- ▶ Brazilian Artificial Intelligence Plan for the period 2024 to 2028
- ▶ Satellite monitoring systems, such as DETER/PRODES

The NDC lists the following Governance Instances

- Presidential General Secretariat dedicated to SDGs
- National SDG Commission
- Scientific Advisory Chamber
- Interministerial Committee on Climate Change (CIM)
- Brazilian Network for Research on Global Climate Change (Rede Clima)

HOW TO INTERPRET BRAZIL'S NDC?

Why is the 1.05 GtCO_{2e} target in 2035 considered the international commitment?

Article 4.3 of the Paris Agreement requires countries to enhance their climate targets every five years, always increasing ambition. In Brazil's new NDC, the text specifies that the official commitment for complying with Article 4.3 will only be the 1.05 GWP AR5 target. Additionally, this same value will be used as a reference for market mechanism transactions. Thus, despite mentioning a range, the NDC formalizes only the 1.05 GtCO_{2e} level for Paris Agreement compliance and use of market instruments.

If 1.05 GtCO_{2e} is the international commitment, why did Brazil present a range for GHG reduction, indicating the possibility of reaching 850 MtCO_{2e} in 2035?

Our understanding is that by signaling the possibility of achieving a 67% reduction compared to 2005, corresponding to 850 MtCO_{2e} in 2035, the country indicates that it is feasible, through a combination of strategies, to be even more ambitious than the official commitment. This would allow Brazil to benefit more broadly from investments, leveraging competitive advantages in the global carbon market and in attracting private capital. However, for this number to effectively become the central guideline of domestic

climate policies, we understand that beyond what's in the NDC, a presidential decree establishing 850 MtCO_{2e} as a target for the National Climate Change Plan (Climate Plan), sectoral plans, and carbon budgets is necessary.

What is the effect of choosing 1.05 GtCO_{2e} in 2035 for Paris Agreement compliance?

In our view, by formalizing only the less stringent target, Brazil has a better chance of achieving what is outlined in the NDC, while not limiting the potential for implementing more expressive climate contributions. However, from the perspective of alignment with ambitious global scenarios, the NDC falls short: the IPCC and the first GST speak of a golden rule of 60% emissions reduction relative to 2019. According to this criterion, the 1.05Gt commitment represents a 39% reduction compared to 2019. If Brazil's target elicits the same level of ambition from peers, it will generate a weak collective result.

Shouldn't we pursue the 850 MtCO_{2e} target for 2035?

Our understanding is that if the country wishes to align more closely with the global objective of limiting temperature rise to 1.5°C above pre-industrial levels, it is essential to make every effort to meet the more ambitious target of the range: 850 MtCO_{2e}.

This effort is fundamental because, even achieving this target - which corresponds to a 50% reduction compared to 2019 levels - the country would still fall short of the Global Stocktake (GST) recommendation, which asks countries to collectively commit to a 60% reduction compared to 2019.

Where does the 1.05 GtCO_{2e} in 2035 come from?

According to reports, the high-level federal government decision, led by the President, was based on calculations performed using the BLUES (Brazilian Land Use and Energy System) integrated assessment optimization model from COPPE-UFRJ. According to the government, all sectors of the economy were simultaneously analyzed to arrive at a minimum-cost solution with a trajectory that fulfills the mission of GHG emissions neutrality by 2050. The modeling has not yet been made available to the public. Understanding its premises and results will be fundamental to comprehend the advantages and disadvantages of the chosen path.

Do we have a chance of achieving the 2025, 2030, and 2035 targets?

The 2025 emissions results will only be released in 2026, but the first Biennial Transparency **Report** (BTR), submitted to the Climate Convention in December, reports an increase in Brazilian emissions to 2.039 GtCO_{2eq} in 2022, making it difficult to achieve the established target for 2025 of 1.32 GtCO_{2eq}. To reduce emissions by 719 million tons of CO_{2eq} between 2022 (most recent official

inventory) and 2025, representing a 35% cut in emissions in three years, a major decarbonization push would be needed, not only by curbing deforestation in various Brazilian biomes but also by achieving results in other sectoral policies, such as agriculture and energy. In the BTR text, the government avoids making projections about meeting this 2025 commitment, as expected. Our understanding, however, is that the difficulty at this first moment should stimulate increased ambition in the following decade, until 2035, when Brazil will already have Climate Plan instruments to pursue greater ambition. Meeting the targets for the next decade is feasible, but efforts need to be enhanced.

Do we have a strategy to achieve climate neutrality by 2050?

Our understanding is that, although the 2035 NDC points toward net zero for 2050, we do not yet have a long-term instrument guiding policies and actions, such as the Long Term Strategies (LTS) requested by the Framework Convention and already submitted by 17 G20 countries.

Is the NDC from the federal government? Or does it depend on society and other governments?

Brazil's new NDC explicitly states that the mitigation and adaptation strategies outlined in the Climate Plan rely on establishing partnerships between federal, state, and municipal spheres, the productive sector, academia, social movements, and civil society in both the formulation process and implementation, monitoring, and evaluation.

There is no chance of meeting the NDC objectives without a joint, cooperative, and simultaneous effort from society and sectors.

Is zero deforestation a firm commitment?

Our understanding is yes, although there isn't a single possible conceptualization. Although the government's concept of "zero deforestation" is not yet completely clear, Brazil's NDC appears to focus efforts on two fronts: eliminating illegal deforestation through enhanced command & control efforts, along with land regulation measures that promote good territorial governance; and discouraging "authorizable" deforestation under law, which should occur through large-scale economic incentives for forest protection, and through the combination of assisted regeneration and induced restoration, with emphasis on specific plans for all biomes and macro-policies such as PPCDAm, PPCerrado, and Planaveg.

How will accountability for NDC compliance be carried out?

Implementation is reported through Biennial Transparency Reports (BTRs), with the first **submission** occurring in December 2024. Brazil will update its national inventories for the historical series based on the 2006 IPCC Guidelines or any subsequent guidelines that may replace them. Additionally, the Convention conducts Global Stocktakes (GST) every

five years to assess the collective effort in implementing the Paris Agreement in its various dimensions. From a domestic perspective, "the new NDC is built from the Climate Plan, which will be the guide for climate change actions in Brazil until 2035. It reflects, at the international level, the objectives of national climate policy".

How can sectoral plans better reflect NDC targets?

Our understanding is that the NDC acts as a guiding framework to define sectoral limits (sectoral carbon budgets), which, in turn, ensure that each sector contributes proportionally and in a coordinated manner to emission reduction targets, ensuring a clear and monitored path to economy decarbonization. These sectoral limits allow for the construction of coherent reduction trajectories in the short, medium, and long term, ensuring that sectors such as energy, transport, industry, and agriculture contribute proportionally to the economy's decarbonization. By incorporating these budgets, sectoral plans become concrete instruments for NDC implementation, ensuring that national targets are met in an orderly, equitable, and efficient manner, in line with climate neutrality commitments by 2050.

How are market mechanisms provided for in Brazil's NDC?

Articles 6.2 and 6.4 of the Paris Agreement deal with market mechanisms for international cooperation focusing on greenhouse gas emission mitigation.

Article 6.2 allows countries to cooperate directly with each other to transfer mitigation results (Internationally Transferred Mitigation Outcomes - ITMOs), accounted for in their national climate targets (NDCs). Article 6.4 creates a centralized mechanism under UN supervision (similar to the former Clean Development Mechanism - CDM of the Kyoto Protocol) for generating and trading carbon credits.

One of the tools indicated by the Brazilian government to exceed the target of reducing emissions by 59% compared to 2005 levels by 2035 (equivalent to 1.05 GtCO_{2e}) is the international transfer of mitigation results (ITMOs) generated in national territory, as established in Article 6 of the Paris Agreement. This approach allows leveraging investments in high-cost technologies and accelerating the trajectory toward net zero emissions, respecting the principles of common but differentiated responsibilities and national circumstances. There is no explicit mention in the NDC of other market mechanisms, such as Article 6.4 of the Paris Agreement, although such use should not be ruled out.

How will corresponding adjustments work?

The process has not yet been defined. The Ministry of Environment and Climate Change (MMA) is Brazil's Designated National Authority (DNA) for the mechanisms established in Article 6 of the Paris Agreement. This attribution was formalized by Decree No. 11,550 of June 5, 2023, which establishes MMA's competence to exercise this function

in coordination with the Ministry of Foreign Affairs (MRE). Neither the NDC nor the law creating the SBCE (Law 15,042/2024) provide more details about how future corresponding adjustments will work. The law's regulation may provide more clarity on this matter.

Is there a risk of double counting?

Our understanding is that this possibility does not exist, since the authorization to sell ITMOs is conditional on meeting the NDC target and corresponding adjustments. Article 6 of the Paris Agreement, which governs market mechanisms and international cooperation, requires that emissions or reductions sold as carbon credits (ITMOs) be correspondingly adjusted. This means that if a country transfers an emission reduction to another, it cannot count that same reduction in its NDC. If Brazil generates ITMOs and sells them to another country or company but does not make a corresponding adjustment in its NDC, this reduction could be counted twice: by Brazil and by the buyer. Therefore, the country needs detailed internal regulations to monitor the use of ITMOs, identify sold emissions, and ensure transparency, something that is still under construction.

Who will be responsible for the governance of these matters?

For the implementation of Brazil's NDC, different Designated National Authorities (DNAs) play relevant roles, depending on the mechanism or area of action:

- *The MMA is the Designated National Authority for market mechanisms under Article 6 of the Paris Agreement*
- *The MCTI is responsible for accounting and reporting greenhouse gas emissions and removals in Brazil, including Biennial Transparency Reports (BTRs)*
- *The MRE plays a fundamental role in representing Brazil in international climate negotiations, including NDC review and submission*
- *The Civil House handles interministerial coordination.*

If we manage to lower emissions through deforestation and sell the result, will it be permanent?

No. Emission reductions resulting from decreased deforestation are not automatically considered permanent in the context of international climate negotiations for two reasons: reversal risk and impermanence risk. If Brazil wants to sell this type of result, the country will need to meet specific criteria, such as permanence guarantee, in addition to compensation in case of reversal. In many voluntary carbon markets, the constitution of credit reserves (buffer pools) is required, which function as “insurance” to compensate for potential carbon losses.



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