

Mission to 1.5 Call for Inputs – Contribution of Brazilian Business Coalitions

The Brazilian Business Council for Sustainable Development contributes to the UNFCCC Belém Mission to 1.5 Call for Inputs by answering the following question: “ 1. What action areas and solutions have the highest impact potential to support the submission, ambition and implementation of NDCs and NAPs?”

Throughout 2024 and 2025, the Brazilian Business Council for Sustainable Development (CEBDS) promoted, at the request of Ambassador André Corrêa do Lago, the formation of private sector Sectoral Coalitions to identify pathways for the decarbonization of the Brazilian economy. In a pre-competitive effort, companies, civil society organisations, sectoral associations, academic institutions, and experts developed scenarios aligned with the Brazilian Nationally Determined Contribution (NDC) and the national commitment to achieve climate neutrality by 2050.

The studies conducted identified emission patterns, market trends, technological levers, and best practices capable of supporting the transition across various productive sectors. Among the primary decarbonization vectors identified by the Transport, Energy, Agriculture, and Essential Minerals Coalitions, two cross-cutting levers stand out for their high potential for scale and technical-economic feasibility: **electrification and biofuels**.

Although they follow distinct technological trajectories, both are complementary and essential for reducing emissions within productive, energy, and logistical systems. Consequently, they have occupied an increasing space in international debates regarding the implementation of the Paris Agreement, energy security, industrial competitiveness, and sustainable development.

The Coalitions emphasize that **electrification** represents a structural transformation of energy consumption across the entire economy. In the transport sector, it advances through the growing adoption of electric vehicles for both passengers and freight. A notable example of this trend is the e-Dutra project, presented by Motiva, which seeks to consolidate a zero-emission freight transport corridor in Brazil, demonstrating the potential for integration between logistical infrastructure, renewable generation, and electric mobility.

In industry, electrification also plays a strategic role. Energy-intensive sectors, such as steel, cement, aluminum, and glass, have been incorporating solutions based on the electrification of production processes, combined with the use of lower carbon-intensity raw materials, biomass-derived bio-reducers, and emerging technologies such as low-emission renewable hydrogen. The consolidation of these solutions will depend on technological advancements, cost reductions, economies of scale, and the strengthening of supply chains.

The expansion of electrification is directly associated with the rising demand for critical and strategic minerals. The dissemination of electric vehicles, energy storage systems, smart grids, and renewable generation equipment is expected to significantly increase the need for minerals used in batteries and other clean technologies. Discussions within the Essential Minerals Coalition indicate that the transition to a low-carbon economy could double the global demand for these resources in the coming decades, positioning sustainable mining as

a central element of the energy transition and a development opportunity for emerging countries, provided it is accompanied by adequate social and environmental safeguards.

In parallel, **biofuels** represent a second strategic lever for decarbonization, particularly in sectors where electrification faces greater technical limitations. This agenda gained international momentum with the launch of the Belém Commitment for Sustainable Fuels, led by Brazil during the preparations for COP30. The initiative sets a target to quadruple the production and use of sustainable fuels by 2035, promoting the expansion of renewable solutions capable of replacing fossil fuels across different segments of the economy (“Belém 4x”).

Brazil holds a prominent position in this field due to the experience accumulated since the *Pró-Álcool* program and the development of a robust technological and productive base for renewable fuels. According to the Transport Coalition, the expansion of biofuels represents one of the primary opportunities to accelerate decarbonization in Brazil and other nations, especially in hard-to-abate sectors such as aviation, maritime transport, and long-distance logistical operations.

Simultaneously, the evolution of traditional markets will require new strategies. In the case of ethanol, the increasing share of electric vehicles tends to heighten competition in its primary market: light road transport. In this context, it becomes fundamental to develop new applications for the fuel. Key among these is the production of Sustainable Aviation Fuel (SAF) through the Alcohol-to-Jet (ATJ) route, considered one of the main alternatives for reducing emissions in long-haul air transport. In Brazil, initiatives based on the cultivation of macaúba present additional benefits, such as the restoration of degraded areas, low competition with food production, and potential for carbon removals.

Another relevant opportunity is associated with Carbon Capture and Storage (CCS). The sugar-energy chain generates concentrated streams of biogenic CO₂ from fermentation and biomass cogeneration, creating favourable conditions for CCS projects capable of generating net emission removals.

Despite its potential, the global growth of the biofuel market is expected to occur at a more moderate pace than in recent decades. Projections indicate a stabilization or reduction in demand within mature markets, such as the European Union, while expansion is expected to remain concentrated in the domestic markets of emerging economies in the Global South, such as Brazil, India, and Indonesia. In this scenario, the harmonisation of technical and regulatory criteria is essential to increase investment predictability, strengthen global value chains, and facilitate access to international financing.

The Coalitions also highlight the importance of scaling investments in Research, Development, and Innovation (RD&I) to increase the efficiency of renewable fuels, strengthen certification and traceability systems, and reduce logistical risks along production chains. Beyond conventional biofuels, solutions such as biogas, green hydrogen, and synthetic fuels—including e-methane, e-methanol, and e-ammonia—expand the possibilities for decarbonization in industrial and transport sectors where direct electrification still faces limitations.

The creation of regional production hubs for these fuels can generate additional benefits for economic development, drive exports, attract investment, and strengthen the international integration of renewable energy-producing countries.

The Coalitions pointed out that the combination of electrification and the expansion of biofuels has high potential to accelerate the decarbonization of the Brazilian economy. Compared to a projected scenario of inaction, the Coalition's internal projections indicate that the adoption of biofuels could reduce emissions by approximately 90 million tons of CO₂eq by 2050. In the same comparison, the adoption of levers combining electrification and Power-to-X could avoid the emission of approximately 200 million tons of CO₂eq.

These figures demonstrate the significant contribution that the adoption of electrification processes and biofuels can provide. Both processes are already gaining international traction following the Belém Commitment for Sustainable Fuels and the declaration that the Turkish Presidency of COP31 will place electrification as a central pillar of this year's Conference Action Agenda. Overcoming regulatory, financial, technological, and infrastructural barriers is vital to realising this potential. In this context, the effectiveness of public policies and international cooperation mechanisms is a driving factor in accelerating the adoption of these solutions at scale, and must remove obstacles that prevent them from being treated as frequently complementary, rather than antagonistic, solutions.