MERIDIANA

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TECHNICAL SUBMISSION IN RESPONSE TO THE COP30 PUBLIC CONSULTATION

To
COP30 Presidency
Subject: *COP30 Presidency Roadmap on the Transition Away from Fossil Fuels in a Just, Orderly and Equitable Manner*

Dear COP30 Presidency,

Meridiana, a Brazilian non-profit research and policy institution dedicated to advancing competitive, resilient, and low-carbon economic systems, respectfully submits its technical contribution to the public consultation on the *COP30 Presidency Roadmap on the Transition Away from Fossil Fuels in a Just, Orderly and Equitable Manner*.

At a moment when the global community is called upon to accelerate decarbonization while safeguarding development, energy security, and social stability, the Roadmap represents a critical opportunity to align ambition with implementation realism. Delivering on this objective will require not only the deployment of low-carbon technologies, but the construction of integrated, scalable, and globally interoperable energy systems.

In this context, we respectfully submit that the transition should be guided by three core principles: **diversification, complementarity, and technological neutrality anchored in lifecycle emissions**. Rather than privileging specific technological pathways, effective climate policy should prioritize solutions based on their **carbon intensity across the full lifecycle (cradle-to-grave)**, enabling the most efficient allocation of resources and accelerating emissions reductions at scale.

1. Key structural barriers to the transition

While momentum has increased globally, structural constraints continue to limit the pace and scale of implementation:

- Regulatory uncertainty and lack of long-term signals continue to constrain investment decisions, particularly in capital-intensive sectors requiring long asset lifetimes.
- Carbon lock-in effects associated with existing fossil fuel infrastructure and financial systems perpetuate path dependency.
- Fragmentation across policy domains - including energy, agriculture, and industry - reduces overall system efficiency.

- Limited access to affordable finance, particularly in developing economies, raises the cost of capital and delays deployment.
- Infrastructure and technological gaps, especially in hard-to-abate sectors such as aviation and maritime transport.
- **Socioeconomic dependence on fossil fuel sectors**, including fiscal reliance and employment concentration.
- Persistent concerns regarding sustainability and land use, often stemming from incomplete understanding of tropical agricultural systems and their productivity gains.

2. Guiding principles for an effective transition

To address these challenges, we propose that the Roadmap be anchored in a set of system-level principles:

a) Technology neutrality based on lifecycle emissions

Climate strategies should be grounded in measurable carbon intensity, assessed across the full lifecycle of energy carriers. This approach ensures that policy frameworks reward real emissions reductions rather than specific technologies.

b) Diversification of low-carbon energy portfolios

A resilient transition will depend on a diversified mix of solutions, including biofuels, electrification, hydrogen, and other emerging pathways, adapted to regional conditions and sectoral constraints.

c) Complementarity across technological pathways

Rather than competing, these solutions should be understood as mutually reinforcing components of an integrated energy system, particularly in sectors where a single solution is unlikely to suffice.

3. Accelerating implementation

To translate ambition into deployment, the following enabling conditions are critical:

- **Enhancing regulatory predictability**, through clear targets, long-term mandates, and stable policy frameworks.
- **Scaling climate finance**, including blended finance instruments, guarantees, and risk-sharing mechanisms to mobilize private capital.
- **Strengthening carbon pricing mechanisms**, ensuring that environmental externalities are properly reflected in market signals.

- **Accelerating infrastructure development**, particularly for production, storage, and distribution of low-carbon fuels.
- **Advancing sector-specific strategies**, with targeted solutions for aviation and maritime transport.

4. The strategic role of sustainable biofuels

Sustainable biofuels represent a central pillar of a pragmatic and scalable transition, particularly in sectors where electrification faces structural limitations.

- In aviation, Sustainable Aviation Fuels (SAF) are among the most viable near- and medium-term solutions for deep emissions reductions.
- In maritime transport, multiple low-carbon fuel pathways, including ethanol, green methanol, biodiesel, and bio-oils, offer flexible and increasingly viable alternatives.

Biofuels contribute not only to emissions reduction, but also to:

- Energy security and diversification.
- Rural development and income generation.
- A just and inclusive transition, particularly in developing economies.

Brazilian agricultural practices help address concerns about competition between biofuels and food by increasing productivity on existing farmland, integrating crops and livestock, and expanding mainly over recovered degraded pastures. Techniques such as no-till farming and double cropping further boost output without requiring additional land. Brazil's experience demonstrates that it is possible to scale biofuel production while simultaneously increasing agricultural productivity, preserving natural resources, and maintaining food security, supported by robust certification systems and lifecycle-based carbon accounting frameworks.

5. Building new global markets for low-carbon fuels

Achieving scale will require the deliberate construction of new global markets for low-carbon fuels, supported by coordinated international action.

Key opportunities include:

- The consolidation of a global SAF market, with harmonized sustainability criteria and certification systems.
- The development of interoperable fuel pathways in maritime transport, including the growing convergence between ethanol and green methanol and biodiesel as viable fuel options.

- The deployment of drop-in and transitional solutions, such as biodiesel and renewable oils, enabling immediate emissions reductions within existing infrastructure.

These markets will depend on:

- Regulatory alignment across jurisdictions.
- Standardization and traceability systems.
- Long-term demand signals.

6. Towards a convergent global energy network

Looking ahead, the transition should aim at the creation of a globally integrated and convergent network of low-carbon energy carriers, characterized by:

- Interoperability across fuels and technologies.
- Shared infrastructure and logistics systems.
- Scalability and cost efficiency.
- Strong integration between developed and developing economies.

Such a network would enable a more balanced and inclusive transition, leveraging regional comparative advantages while accelerating global decarbonization.

7. Concluding remarks

The transition away from fossil fuels is not merely a technological shift, it is a systemic transformation that must reconcile climate ambition with economic and social realities.

A successful Roadmap will be one that:

- Prioritizes emissions outcomes over technological preferences.
- Embraces diversity and complementarity of solutions.
- Enables the creation of scalable global markets.
- Strengthens international cooperation and trust.

Meridiana remains at the disposal of the COP30 Presidency to further contribute to this process and to support the development of evidence-based, inclusive, and actionable pathways toward a just, orderly, and equitable transition.

Respectfully,

Meridiana
Brazil