

COP 30 Presidency Roadmap for Transitioning Away from Fossil Fuels in a Just, Orderly and Equitable Manner

Dear COP30 Presidency Team,

In response to your call to gather contributions from a broad range of stakeholders to inform the Roadmap for Transitioning Away from Fossil Fuels in a Just, Orderly and Equitable Manner, the Science Panel for the Amazon (SPA) is pleased to submit its contribution.

The outcome of COP28 called on Parties to contribute, in a nationally determined manner and in line with the Paris Agreement, to the global effort to transition away from fossil fuels in energy systems in a just, orderly, and equitable manner (paragraph 28.d/GST1). The COP30 Presidency's roadmap represents an important step in translating this global consensus into implementation, building on the debates initiated in Belém and recognizing solutions emerging through the Action Agenda. By mapping critical barriers and enabling factors, the roadmap acknowledges that no single transition pathway applies universally and aims to provide differentiated options adaptable to diverse national and regional contexts.

Drawing on the work of more than 300 SPA scientists, our contribution provides science-based evidence on the risks and solutions associated with transitioning away from fossil fuels—an essential step to avoid pushing the Amazon toward a socioecological tipping point.

The document follows the structure proposed by the COP30 Presidency:

- **Part I:** Critical barriers preventing the transition away from fossil fuels
- **Part II:** Key levers to accelerate implementation
- **Part III:** Roadmap experiences, best practices, and lessons learned
- **Part IV:** Pathways for a just, orderly, and equitable transition across diverse contexts

Recognizing the Amazon as a deeply interconnected socioecological system—spanning climate, ecosystems, and societies—this contribution highlights ongoing solutions and innovative actions across the region. By translating scientific knowledge into actionable insights, the SPA seeks to support effective policymaking and transformative action, aligning short-term priorities with long-term sustainability for a living Amazon. We sincerely appreciate the COP30 Presidency's leadership in convening this inclusive process and advancing a collaborative, science-informed approach to the transition away from fossil fuels.

Sincerely,

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(a) What are the most critical barriers — whether physical, economic, financial, institutional, technological or social— preventing a transition away from fossil fuels?

Global Warming related to Greenhouse Gas emissions (GHG), combined with deforestation and forest degradation, are pushing the Amazonian system closer to a tipping point⁴. A large-scale Amazon tipping point may trigger the collapse of most forests and consequently:

- (1) accelerate global warming, hindering efforts to achieve the goals of the Paris Agreement;
- (2) reduce moisture flow across South America, threatening water security for basic socioeconomic activities, such as agriculture;
- (3) increase temperatures across the Amazon region that may become unbearable for humans living in urban and rural areas;
- (4) cause mass species extinctions;
- (5) increase the risks of epidemics and even pandemics due to the tropical forest degradation, and
- (6) compromise the biological and cultural assets that represent key solutions to the current and future challenges of humanity⁴.

Here are **the most critical barriers that are preventing a transition away from fossil fuels** and, in doing so, increasing the risk of reaching critical tipping points:

Financial/economic barriers

- Governments of Amazonian countries often rely heavily on fossil fuel subsidies and revenues for economic stability. This dependence creates a structural barrier to transition: in several Amazonian countries, oil and gas royalties cross-subsidize public budgets, making unilateral phase-out fiscally destabilizing without compensatory international finance⁷.

Institutional/social barriers

- Amazonian countries lack the infrastructure for sustainable energy (solar, wind, green H₂, hydrokinetic pumps, storage), compounded by challenging physical conditions (heavy rainfall, humidity, remoteness) that increase costs and reduce the lifespan of solar panels/equipment;
- Remote Amazonian communities are isolated from national power grids and depend on diesel, which provides electricity for a few hours per day, produces Greenhouse Gas Emissions (GHG), and negatively impacts ecosystems, animal and human health due to emissions that increase air pollution;
- Energy policies are designed for interconnected urban systems, not for the realities of rural Amazonian communities: weak intersectoral coordination between energy, environment, Indigenous Peoples and Local Communities, and land-use planning generates regulatory conflicts;
- Lack of incentive plans to promote best practices for reducing the carbon footprint, particularly in major Amazonian cities.

Political barriers

- The elections in several Amazonian countries this year and the energy transition combined create political polarization in several Amazonian countries (such as Brazil, Peru, Colombia and Venezuela);
- Changes in Colombia's Congress composition after the March elections left the transition agenda without direct promoters in the new Senate.

(b) What potential levers, whether economic, financial, institutional, social or technological, exist for accelerating the implementation of the transitioning away commitment?

Institutional opportunities: energy planning

- Adopt integrated renewable energy solutions adapted to Amazonian environments: photovoltaic (PV) systems, small-scale hydrokinetic turbines, and modern biomass applications¹⁰. In particular, small-scale hydrokinetic turbines offer a viable alternative for remote, diesel-dependent communities;
- Promote sustainable urban planning to conserve energy, including green roofs and urban greening to reduce the heat island effect;
- Recognize Indigenous Peoples and Local Communities as central actors in energy decentralization, strengthening local autonomy and minimizing pressure on ecosystems^{2,7}.

Financial opportunities

- Redirect financial efforts away from fossil fuels toward renewable energy sources;
- Establish 'green royalties': a fund to offset foregone oil revenues and to provide instead direct benefits for socio-bioeconomy development¹, health, and education⁹. To be politically viable, this fund requires a credible international capitalization commitment, analogous to the loss-and-damage fund;
- Provide transition funds for those sectors or people who live from the extraction of fossil fuel resources in a fair and equitable manner;
- Invest in **decentralized, renewable, sustainable** energy systems to ensure affordable and reliable energy access for all remote communities in the Amazon¹⁰.

(c) What country, regional or sector roadmap experiences, best practices, and lessons learned can be shared?

Several examples constitute the Amazon's most important regional contribution to the global fossil fuel transition debate:

- **The Yasuní-ITT initiative (Ecuador):** established the precedent that a forested country can formally offer to forgo extraction in exchange for compensatory international finance. The 2023 Yasuní referendum, in which 59% of Ecuadorians voted to halt oil extraction in Block 43, demonstrates that democratic mandates for leaving fossil fuels in the ground are achievable.

- **Colombia's moratorium:** the ministerial resolution to declare the Colombian Amazon free of oil and gas, and the moratorium on new oil exploration contracts announced at COP30, represents a significant regional policy commitment.
- **Ecuador's transition to solar energy:** a just energy transition should be community-led, locally adaptive, and deliver social and economic benefits (alongside reducing emissions). For example, [12 villages in Ecuador's eastern provinces](#) now depend on solar panels for transportation, powering schools, and supporting ecotourism instead of using expensive and pollutive Diesel (Alarcon, 2024). Indigenous communities helped to build and maintain solar energy systems, which increased general access to energy and powered schools.

(d) How can a just, orderly and equitable transition best reflect the diverse realities of countries at different stages of development and with different degrees of dependence on fossil fuels?

Overarching Strategy:

- To achieve a just energy transition, **decentralize** and **diversify** energy systems: combining solar, wind, green H2, and small-scale hydrokinetic sources improves energy access in remote locations, empowers Indigenous Peoples and Local Communities, and reduces fossil fuel dependence, allowing a transition away from fossil fuels while addressing social equity and development needs.
- A just transition must go beyond technological change to integrate ecological, sociocultural, governance, territorial dimensions^{2,7,8}.

Moratoria and safeguards against extractive activities and unsustainable alternative sources of energy:

- **Prohibit new oil and gas extraction in the Amazon** and offshore regions, review existing concessions, and establish a regional political pact that declares the Amazon an oil-free zone forever⁹;
- **Halt the construction of new (small and large) dams** in the Amazon as they disrupt the ecological and sociocultural connectivity of the Amazon region³;
- Require **binding environmental due diligence** and cumulative impact assessment before authorizing new mining or hydropower concessions in the Amazon, and before implementing alternative sources of renewable energy¹⁰.

Promote socio-bioeconomies in the Amazon:

- Support and fund **low-carbon economies / socio-bioeconomies** as alternative livelihoods based on the sustainable use of biodiversity, Indigenous and Local Knowledge, and innovation, demonstrated to be more economically viable, inclusive, and compatible with forest conservation^{1,5,6};
- Integrated energy governance **strengthens local economies** by improving education, health, research, harvesting, food storage, and forest product processing systems²;

- **Strengthen enabling conditions** by developing targeted public policies and financing mechanisms for scaling socio-bioeconomy initiatives^{1,5,6}.

Protect territorial rights and ensure the effective participation of Indigenous Peoples and Local Communities:

- Guarantee territorial rights and Free, Prior, and Informed Consent (FPIC), positioning **Indigenous Peoples and Local Communities as central actors** in governance and decision-making, including in energy planning and transition processes²;
- Provide **legal and financial support** to prevent fossil fuel drilling in Indigenous Territories and Protected Areas in the Amazon⁹;
- Support funding and development of local skills and resources to install and maintain small turbines and solar panels and batteries.

Global climate responsibility:

- International climate action must recognize that **maintaining the ecological integrity** of the Amazon biome is **essential** for the planet's climate regulation and the global hydrological cycle⁴;
- Mobilize stronger **financial commitments** from high-emitting countries, recognizing the Amazon's role in global climate stability and its disproportionate vulnerability;
- To reduce the likelihood of **reaching a large-scale tipping of the Amazon forest system**, actions that strengthen forest resilience are urgently needed, including the necessity to act at global, regional, and local scales to drastically reduce greenhouse gas emissions, to stop deforestation, forest degradation, and wildfires⁴.

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Contribution of the Science Panel for the Amazon (SPA) to the UNFCCC COP30 Presidency Roadmap or Transitioning Away from Fossil Fuels in a Just, Orderly and Equitable Manner

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