Submission to the COP30 Presidency Roadmap on the Transition Away from Fossil Fuels

To: The COP30 Presidency

From: Beijing Greenovation Hub for Public Welfare Development (Greenovation Hub)

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Subject: Addressing the Systemic "Planning-Demand-Debt" Nexus in Emerging Economies for a Just and Orderly Transition

Overall Expectations

The COP30 Presidency Roadmap must move beyond supply-side capacity targets to address the structural macroeconomic constraints facing emerging economies. We expect the Transition Away from Fossil Fuels (TAFF) Roadmap (Hereafter *the Roadmap*) to facilitate a transition that is **macro-stabilizing**, rather than debt-inducing. Central to this is the resolution of the **"Planning-Demand-Debt" Nexus**: a systemic divergence where energy capacity planning outpaces actual industrial load-absorption capacity, leading to low asset utilization and fiscal insolvency.

The Roadmap should champion **International Financial Architecture (IFA) Reform**, specifically the optimization of **transition-adjusted sovereign risk assessments**, and advocate for **sectoral coupling** strategies that synchronize renewable energy (RE) deployment with industrial development. This approach ensures that the transition away from fossil fuels enhances energy sovereignty without compromising national solvency.

I. Critical Barriers: The Systemic Challenges of Emerging Markets

1. The Planning-Demand Mismatch and "Optimism Bias"

A primary institutional barrier is the asymmetric calibration between energy supply planning and macroeconomic reality.

- **Institutional Forecasting Bias:** Many high-growth emerging economies operate under overly optimistic industrial growth projections during the early phases of energy corridors.
- **Load Profile Imbalance:** Utility-scale RE projects are often commissioned without a corresponding industrial base to act as a baseload consumer, leaving the system reliant on volatile residential demand.
- **The Low-Utilization Trap:** Under "Take-or-Pay" Power Purchase Agreements (PPAs), governments are fiscally obligated to pay for idle capacity, transforming clean energy assets into public liabilities.

2. Systemic Circular Liquidity Constraints (Circular Debt)

The lack of cost recovery due to low utilization and currency depreciation creates a self-perpetuating **fiscal-energy debt spiral**.[1]

- **Revenue-Cost Inversion:** Severe currency devaluation and high generation costs (often tied to high-interest financing) lead to a situation where retail electricity prices cannot cover the system's marginal costs. For example, Pakistan's capacity payments reached PKR 2.1 trillion in 2024, exacerbated by reduced industrial output and shrinking grid demand. [2]
- **Capital Crowding Out:** The resulting circular debt consumes the fiscal space necessary for grid modernization, effectively halting the transition. Approximately 30–35% of the current electricity tariff consists of non-energy financial adjustments, charges for inefficiency and debt repayment rather than actual power consumed.[3]

3. Structural Path Dependency and Asset Stranding

- **Capital Inflexibility:** In transition economies, the young age profile of existing thermal fleets means they have not reached their financial break-even point.
- **Technical Inflexibility:** High line losses and the absence of grid-scale Battery Energy Storage Systems (BESS) make the immediate phase-out of fossil fuels a threat to system-wide stability.

4. Extreme Geopolitical Scenarios and Supply Chain Vulnerability

- **Exogenous Price Shocks:** In scenarios of regional conflict, volatile fossil fuel prices force energy-importing nations to deplete foreign exchange reserves on emergency fuel subsidies, cannibalizing the capital earmarked for RE investment.
- **Green Protectionism:** Geopolitical tensions risk fragmenting global green supply chains, increasing the landed cost of decarbonization technologies for the Global South.

II. Potential Levers: Structural Reforms for Acceleration

1. International Financial Architecture (IFA) Reform

- **Optimizing Transition-Positive Credit Scoring:** *The Roadmap* should advocate for a reform of sovereign credit rating methodologies. Credit rating agencies should differentiate between debt incurred for consumptive fossil fuel subsidies and

[1] Greenovation Hub. The Status, Challenges and Opportunities for China-Pakistan Renewable Energy Investment and Financing Cooperation. 2025. https://www.ghub.org.cn/news/detail/report-china-pakistan-re-financing-aug25

[2] IEEFA. Pakistan's PKR2.1 trillion capacity payments crisis triggers power purchase agreement renegotiations with independent power producers. 2024.

[3] PIDE. Circular Debt and Electricity Tariffs: Unequal Burdens across Household Quintiles in Pakistan. 2025.

"productive transition debt" that lowers long-term energy import costs and enhances fiscal resilience.

- **Multilateral Credit Enhancement:** MDBs need to expand the use of first-loss guarantees and sovereign risk insurance, while specialized climate funds such as the GCF can scale up sub-sovereign and project-level credit enhancements to crowd in private capital.

2. Sectoral Coupling for Demand-Side Integration

- **Integrated Industrial-Energy Hubs:** Transitioning economies should prioritize the development of Special Economic Zones (SEZs) where industrial load and RE generation are co-located. This creates a "captive" industrial demand that ensures high asset utilization from day one.
- **Technology Localization, Value-Chain Integration, and Transfer as a Must:** The Roadmap should facilitate the transfer of assembly and O&M capabilities to local markets, fostering domestic green industrialization and reducing forex outflows. Importantly, TAFF commitments need conditions on equitable technology transfer arrangements, including licensing, financing, and IP terms. To operate this, the *Roadmap* can consider requiring technological support delivered through MDBs or MCFs include localization benchmarks: measurable targets for domestic assembly, O&M capacity, and local component sourcing within a defined timeframe.

III. Implementing TAFF in a Just, Orderly, and Equitable Manner

1. Fiscal Space and Debt Relief

Many developing countries face a structural tension between servicing energy debt and financing the transition. Addressing this requires reforms to international financial architecture that distinguish productive transition debt from fossil fuel liabilities, expanded debt swap mechanisms, and IFI conditionalities that do not penalize investment in grid modernization or RE deployment.

2. Holistic Approach to the Power, Grid, and Industry Planning

RE deployment, grid infrastructure, and industrial demand need to grow together. National TAFF commitments need to be grounded in demand-side evidence, including load profiles, grid absorption capacity, and industrial growth trajectories, rather than supply-side targets alone. Grid modernization and storage investment should be treated as co-equal with generation capacity to avoid stranded fiscal liabilities.

3. Open and Equitable Green Supply Chains

The *Roadmap* needs to affirm that green supply chains remain open and accessible to all nations, avoid measures that raise the cost of clean technology for the Global South, and ensure that technology transfer commitments are enforceable.

Conclusion

The COP30 Roadmap represents a pivotal opportunity to bridge the gap between global climate ambition and local macroeconomic reality. By addressing the **Planning-Demand-Debt Nexus** through financial innovation and sectoral coupling, the international community can ensure a transition that is truly just, orderly, and equitable for the developing world.

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