



# Energy Transitions at a Crossroads

## Balancing Growth, Decarbonization, and Development

Eilish Zembilci and Jackson Ewing, Nicholas Institute for Energy, Environment & Sustainability

Copyright © 2024 Nicholas Institute for Energy, Environment & Sustainability CC BY-NC 4.0

The global push for clean energy transitions has reached a critical juncture. As climate change intensifies, low- and middle-income countries (LMICs) face a precarious balancing act between addressing urgent adaptation needs, pursuing development goals, and decarbonizing their economies. While these objectives can be complementary, they also create challenging choices around meeting human development imperatives and decommissioning or avoiding further fossil development.

These tensions were at the heart of a [recent high-level panel](#) moderated by Jackson Ewing, director of energy and climate policy at the Nicholas Institute for Energy, Environment & Sustainability, during New York Climate Week at the Nest Climate Campus. Hosted by the Duke Climate Commitment, the panel brought together Alix Peterson Zwane (former Global Innovation Fund/Duke), Stefano Marguccio (SE4All), and Stephanie von Friedeburg (former International Finance Corporation/Citibank) to discuss the future of energy transitions in the developing world.

The discussion revealed several themes that will shape the future of energy transitions in the developing world.

### THE IMPERATIVE OF ECONOMIC GROWTH AND ENERGY ABUNDANCE

---

A nearly universal challenge for energy transitions in LMICs concerns meeting economic growth imperatives while concurrently building low-carbon energy systems that are aligned with national and global climate commitments. Economic growth and poverty reduction [are tightly correlated](#) to

improvements in child mortality, fulfillment of basic needs, and overall human flourishing. This reality makes growth a necessity for developing nations. Proposals to delay or curtail industrialization in LMICs contradict the principles of equitable development enshrined in the United Nations' Sustainable Development Goals and disregard the pressing needs of millions who aspire to improved living standards and economic opportunities.

*“Growth really is an imperative if we take seriously our shared responsibility amongst each other to have a flourishing society for everyone and all lives have equal value.”*

—Alix Peterson Zwane

Supporting LMICs in their pursuit of low-emission industrialization pathways requires substantial material, policy, and technical assistance from the international community. [India's ambitious goal to achieve high-income status by 2047](#)—a century after its independence—exemplifies the dual challenge of economic expansion and energy transformation faced by many developing countries. Though Just Energy Transition Partnerships (JETPs) emerged as a promising support mechanism, the primary focus on high-emitting nations [is too narrow](#). Moreover, these partnerships must carefully balance international support with local ownership and priorities to be truly effective.

*“I think [the Just Energy Transition Partnerships] are a great example of there must always be a balance between ownership and will.”*

—Stefano Marguccio

A more comprehensive approach is needed to address both countries with significant existing fossil fuel infrastructure requiring transition support and those with fewer existing assets but abundant renewable resources and significant industrialization needs. Expanding JETPs and similar platforms to engage more meaningfully with this diverse range of countries, while respecting their unique contexts and development goals, could have greater impact. This strategy could prevent high-emission infrastructure development where cleaner technologies could be adopted from the start, aligning global climate objectives with local development priorities.

This proactive strategy balances the imperative to decommission high-emission infrastructure with deploying clean energy alternatives to meet growing demand. Viewing [energy access as foundational to economic development](#) and climate resilience can inform policies that aim to enable ambitious growth while accelerating clean energy adoption in LMICs, contributing to a more sustainable and equitable global energy transition that reflects the needs and aspirations of each country.

## NAVIGATING DIFFICULT CHOICES ON FIRM POWER

---

Perhaps the most contentious topic in energy transitions revolves around the role of firm power sources, such as natural gas and nuclear, in developing countries' energy mixes. For a continent like Africa, responsible for [just 4% of global emissions](#), categorically ruling out natural gas development seems difficult to justify—particularly when wealthier nations continue to rely on diverse energy mixes and [hit record highs](#) in their own domestic oil production.

*“...[C]ountries in Africa that have natural gas assets that they have not fully exploited—to expect them not to do so and not to borrow privately to do so simply isn't realistic ... In the United States, we're taking an all-of-the-above approach, and we're still being very ambitious about our climate targets. I think we can do exactly the same thing in the developing country context.”*

—Alix Peterson Zwane

Securing reliable and clean firm power sources remains a critical challenge in the global energy transition, with significant implications for both developed and developing economies. Although nuclear power offers a [consistent carbon-neutral source](#) for baseload energy, widespread adoption continues to face significant hurdles. These include capacity and resource constraints, limited global support for nuclear development in certain countries due to geopolitical concerns, and lingering public apprehension about safety.

Likewise, green hydrogen offers promising potential as a clean firm power source but faces significant market challenges. Major industries and energy consumers [need to signal strong, long-term demand to encourage production](#), yet they hesitate without adequate infrastructure—a dilemma faced across all markets. Promising advances in long-duration storage, green hydrogen, and advanced nuclear offer hope, but require sustained investment and policy support to ensure commercially viable technologies are reliable, adaptative, and safe.

Although fully decarbonized energy systems remain the ultimate goal, the international community will need to grapple with whether opposition to any fossil fuel development in poor countries is ethical or realistic. Future progress requires acknowledging that the journey to a clean energy future may look different for each country and community. In other words, [energy transition strategies need to be tailored](#) to each country's unique circumstances, natural endowments, and development priorities. A one-size-fits-all approach imposed from abroad is neither practical nor equitable.

## THE CHALLENGE OF PROJECT PIPELINE DEVELOPMENT

---

A persistent debate in climate finance centers on whether there is truly a dearth of bankable clean energy projects in developing countries or if viable projects simply struggle to access capital due to risk perceptions and other barriers. The reality is, LMICs are too-often [unhelpfully lumped into one category](#). Instead, differentiating between individual LMICs can paint a very different picture of project pipeline challenges.

In many middle-income countries, [shovel-ready projects](#) exist but face hurdles in attracting institutional investors. These investors struggle to quantify risks in unfamiliar markets and navigate the complex, bespoke nature of these clean or renewable energy projects. Development finance institutions, under pressure to green their portfolios, have been criticized for crowding out private capital that might otherwise stretch to finance these projects.

Lower-income countries face more fundamental challenges around state capacity to design bankable projects and create stable regulatory environments. Investors have myriad concerns, such as whether power purchase agreements will be honored across changes in political administrations. Some specialized investment platforms have stepped up to address this gap, with emerging initiatives like HSBC and Temasek's [PentaGreen](#) offering promising models for financing marginally bankable projects.

However, realizing the full potential of such collaborations and related opportunities requires accurately assessing risks and opportunities in diverse LMIC markets. This in turn necessitates financial institutions to develop a nuanced understanding of local contexts. Such understanding is significantly enhanced through direct, on-the-ground engagement: establishing local offices, building relationships with key stakeholders, and gaining firsthand knowledge of market dynamics. This immersive involvement allows financial decision-makers to move beyond desk-based assessments, providing crucial insights that can't be gleaned from distant financial centers.

*“When you don't have boots on the ground in those countries every single day and you bring a project to your risk committee, they hesitate because they don't really understand the risk. And it's very hard to quantify. The data is not fully there.”*

—Stephanie von Friedeburg

## RETHINKING RISK AND REGULATION IN DEVELOPED CONTEXTS

---

A significant but often overlooked barrier to scaling climate finance lies in the regulatory frameworks governing financial institutions in countries that invest capital around the world. In the wake of the 2008 global financial crisis, [successive iterations of the Basel Accords](#) have made it increasingly difficult for commercial banks to finance long-term infrastructure projects in emerging markets. Even when development finance institutions offer risk mitigation tools, [current regulations often prevent banks from claiming capital relief](#).

*“...[Y]ou hear a lot about, well, ‘we need to improve the policy and regulation in emerging markets to get the money to flow’. I actually think that the Billions to Trillions agenda has partly been held back by regulation in the developed world. ... Basel really makes project finance for institutions like Citibank, Bank of America incredibly complex and really difficult to go into emerging markets.”*

—Stephanie von Friedeburg

This regulatory environment, coupled with stringent internal compliance practices, creates significant headwinds for mobilizing private capital toward clean energy in developing countries. Furthermore, unlocking the potential of institutional investors, pension funds, and insurance companies as substantial sources of additional finance requires addressing the regulatory barriers that currently hinder their participation.

Addressing these challenges will require (1) a clear-eyed reassessment of whether well-intentioned financial regulations are having unintended consequences for global development and climate goals, and (2) concerted effort among allies and partners to align on best business practices to more effectively drive clean energy transitions.

## CATALYZING PROGRESS THROUGH RADICAL COLLABORATIONS AND CULTURAL SHIFTS

---

Accelerating clean energy transitions in LMICs demands new modes of cooperation between public and private actors. This is not only about financial innovation; it is about bridging fundamental gaps in understanding and approach between development institutions and commercial banks. Efforts such as the [Bridgetown Initiative](#) are spurring critical debates on reforming multilateral development banks to better support climate action and sustainable development; expanding and deepening these conversations is essential for progress.

*“Development institutions don’t really understand commercial banks and capital markets. And commercial banks don’t understand development institutions. And I spend a lot of my time translating between the two. I feel like we need to get people together in small rooms and really start collaborating and understanding.”*

—Stephanie von Friedeburg

Moreover, a cultural shift is needed within key institutions to evaluate impact at the portfolio level rather than scrutinizing individual project outcomes. Donor agencies need to move beyond risk aversion and the fear of congressional scrutiny for isolated failures. This portfolio-level approach enables a more comprehensive assessment of investments in emerging markets, potentially improving overall impact. Although individual projects might face challenges in bankability, a diversified portfolio can enhance the collective strength of investments without compromising prudent financial practices or overlooking project-specific risks.

*“It is really important for donors to find ways to reform their internal processes so that they are more comfortable with looking at the performance of a portfolio of grants or investments, as opposed to looking project by project about whether something failed or succeeded. And that requires a lot of cultural change within donor agencies.”*

—Alix Peterson Zwane

Creating a more conducive environment for the bold, large-scale investments needed to drive meaningful progress in global energy transitions should not be delayed any longer. Bringing private capital providers together in focused dialogues can help identify constraints, leverage collective expertise, and develop creative solutions to unlock climate finance at scale. In many ways, a significant part of the solution is confoundingly simple: keep talking to each other.

## A NEW BARGAIN FOR SUSTAINABLE DEVELOPMENT

---

Moving forward requires a new kind of bargain between developed and developing countries—one that increases state capacity for innovative energy transitions in emerging markets while securing commitments for finance, technology transfer, and increased trade from wealthier countries. This bargain should move beyond simplistic notions of developed countries dictating the terms of development. Instead, such bargains should be locally led, demand-driven plans that reflect national priorities.

Looking ahead to COP29 in Baku, Azerbaijan, the contours of this new bargain may define the terms of negotiation around the [New Collective Quantified Goal \(NCQG\)](#) on climate finance. This framework will contribute to the shape of climate finance for years to come, but its success ultimately hinges on tangible, on-the-ground project development and execution. The NCQG should set ambitious targets *and* create mechanisms that increase access to the financial and technical support necessary for empowering LMICs to drive their own energy transitions.

The road ahead remains challenging, and the stakes could not be higher. Successfully navigating the tensions between growth, decarbonization, and development is essential—not just for climate mitigation, but for realizing a more prosperous and equitable global future. It will require unprecedented collaboration, innovation, and a willingness to challenge long-held assumptions about energy and development.

The time for bold action is now.

### CITATION

Zembilci, E., and J. Ewing. 2024. *Energy Transitions at a Crossroads: Balancing Growth, Decarbonization, and Development*. NI WP 24-03. Durham, NC: Nicholas Institute for Energy, Environment & Sustainability, Duke University. <https://nicholasinstitute.duke.edu/publications/energy-transitions-crossroads>.

Cover image courtesy David Degner.

### Contact

Nicholas Institute | Duke University | P.O. Box 90467 | Durham, NC 27708  
1201 Pennsylvania Avenue NW | Suite 500 | Washington, DC 20004  
919.613.1305 | [nicholasinstitute@duke.edu](mailto:nicholasinstitute@duke.edu)