New Headwinds to Clean Energy:
Four crippling squeezes on SDG7 and priorities to address them

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Executive Summary

Shocks from the pandemic and the Russian invasion of Ukraine are disproportionately affecting emerging and frontier economies – and having especially severe effects on their energy sectors. Progress toward universal access to energy has already stalled, putting achievement of SDG7 at risk. We identify four interlocking squeezes disrupting both grid and off-grid energy development across emerging and frontier markets:

1. **Supply chain squeeze.** Supply chain hurdles are leading to delays and increasing costs of logistics and inputs.
2. **Contract squeeze.** Utilities are caught between rising costs and fixed power purchase agreements, pushing investors to find workarounds.
3. **Cost of capital squeeze.** Tightening monetary policy and rising interest rates are driving up the costs of capital, especially impacting CapEx-heavy clean energy.
4. **Demand squeeze.** Public sector appetite for new PPAs and investment in enabling infrastructure is waning.

We recommend high-priority actions to address each of these squeezes:

- **Support more aggressive diversification of the global renewable energy supply chain,** including by expanding investment in emerging market-based manufacturing and mineral extraction, relaxing protectionist policies, and adopting a common set of supply chain traceability standards.
- **Expand the tools available to support distressed utilities**, including far more funding for transmission and distribution.
- **Provide aggressive countercyclical financing,** such as JETP-style packages for more non-coal countries and the creation of a Climate Finance Global Guarantee Facility.
- **Aggregate procurement**, particularly for DRE and smaller scale projects.

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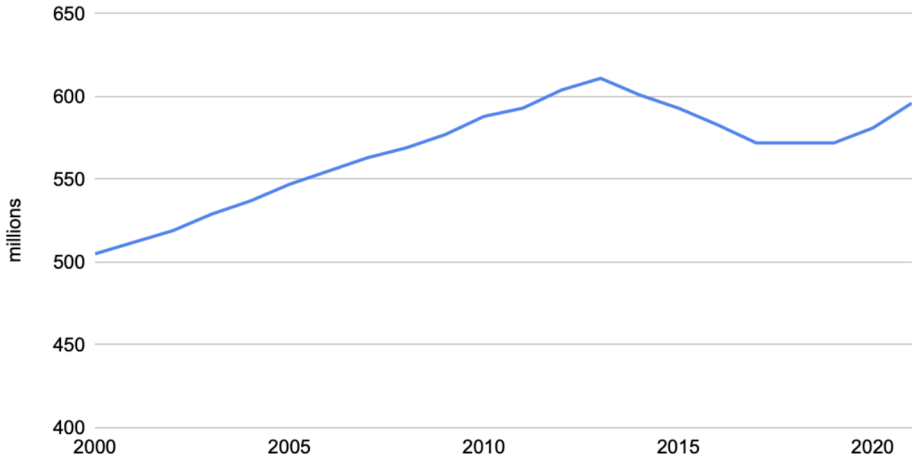
Immediately relevant context

Global economic shocks are disproportionately affecting emerging and frontier economies and having especially severe effects on their energy sectors. The combined effects of the pandemic and Russia's invasion of Ukraine are compounding friction in global supply chains by increasing input costs and tightening liquidity in financial markets – and the resulting economic burden will hit the global poor hardest. The World Bank Group's latest Global Economic Prospects report warned of a slump in global economic growth amid persistently high inflation that puts many economies – particularly those heavily dependent on imports – at a pronounced risk of stagflation.[2] In Sub-Saharan Africa, an additional 25 million people could be pushed into poverty by the end of the year.[3]

Progress toward Sustainable Development Goal 7 (SDG7) – to ensure universal access to affordable, reliable, sustainable and modern energy – has stalled. Hard-won access gains made over the previous decade have been rolled back – particularly in Africa – by a combination of factors including the declining energy purchasing power of households, the eroding fiscal health of national electric utilities, and pandemic-induced limitations on construction, maintenance, operations, and sales in the distributed renewable energy (DRE) sector.[4] Rising poverty rates have put basic electricity newly out of reach for nearly 90 million people in Asia and Africa who already had connections, but can no longer afford to pay for service.[5] Preliminary data from the International Energy Agency (IEA) suggest that in 2020, sub-Saharan Africa saw its first net increase (4%) in the number of people without access to electricity since 2013, after having seen the number of unelectrified decline by an annual average of 9% from 2015-2019. To achieve SDG7 by 2030 in Africa, the IEA's Sustainable Africa Scenario (SAS) projects 90 million people will need to gain access to electricity every year, nearly triple the pre-COVID trajectory.[6]

[2] Global Economic Prospects: Slowing Growth and the Risk of Stagflation, World Bank Group, June 7, 2022.
[3] Africa Energy Outlook 2022, International Energy Agency (IEA), 2022.
[4] IEA, Africa Energy Outlook, 2022.
[5] Covid-19 slows progress toward universal energy access, IEA, June 1, 2022.
[6] IEA, Africa Energy Outlook, 2022.

Figure 1: People Without Access to Electricity in Sub-Saharan Africa



Source: IEA SDG7 Database 2022

The DRE sector has been particularly impacted by pandemic-induced volatility. Intermittent lockdowns and associated economic constraints undercut incomes among DRE customers, pushing many households to return to products like kerosene and firewood. While many governments implemented programs to support energy affordability during the pandemic, most efforts – outside of a few exceptions like those in Nigeria and Rwanda – did not extend to off-grid customers.[7] One 2021 analysis indicated that 77% of potential borrowers from the Energy Access Relief Fund, established to help energy access companies weather COVID-related liquidity challenges, required emergency financial assistance just to stay afloat. Across Sub-Saharan Africa, solar home system (SHS) sales fell by about 20% between H1 2019 and H1 2021.[8]

> *"The shocks caused by Covid-19 reversed recent progress towards universal access for electricity and clean cooking, and slowed vital improvements in energy efficiency even as renewables showed encouraging resilience."*
>
> - Fatih Birol, IEA Executive Director [Tracking SDG7: The Energy Progress Report 2022]

On-grid renewable energy project pipelines have so far proven more resilient. Globally, total investment in clean energy and energy efficiency actually rose slightly in 2020 and 2021.[9] This was mainly because stop-work orders for projects under construction were relatively short lived, and most Chinese manufacturing resumed shortly after the initial wave of lockdowns. Input costs initially remained low and mostly stable. Many economic stimulus programs, particularly in Europe, included green growth components with financing earmarked for

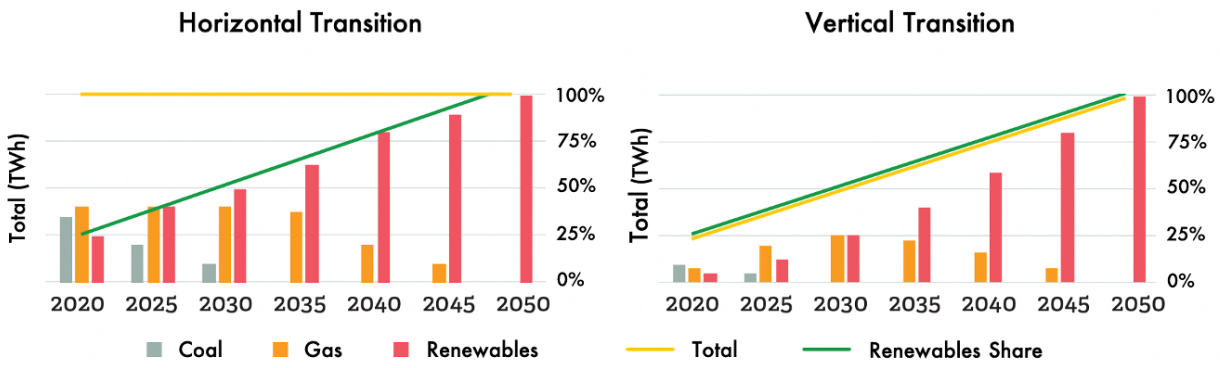
[7] IEA, Africa Energy Outlook, 2022.
[8] IEA, Africa Energy Outlook, 2022.
[9] World Energy Investment 2021, IEA, June 2021.

emerging markets, which bolstered investor confidence during the initial economic contraction.

However, a coming wave of concurrent disruptors could pose serious risks to the growth of both on-grid and off-grid renewable energy deployments in under-electrified countries. Their combined efforts threaten to erode the value proposition of clean energy projects and subsequently drive up the risk premium emerging markets-focused investors chase. This is especially worrisome from an energy access perspective because under-electrified markets face an energy transition challenge that is structurally different from those in more energy-intensive economies. Energy transitions in under-electrified markets are additive (or "vertical") rather than substitutionary (or "horizontal"). Newly constructed clean power capacity does not serve primarily to displace dirtier generation assets or accelerate their retirement, but rather to narrow the yawning gap between power demand and supply.

Thus, while headwinds in the energy-rich world may temporarily slow the pace of decarbonization, the primary impact in energy-poor countries will be to limit progress towards electrification and development goals.

Figure 2: Dynamics of Different Energy Transitions



Source: Murefu Barasa and Mark Thurber, "Energy-poor countries face a special challenge: Vertical energy transitions," *Energy for Growth Hub*, February 2022.

Policy responses to mitigate the effects of these trends should start by disentangling the multiple drivers of disruption. We identify four major squeezes, three supply-side and one demand-side.

Squeeze #1: Supply chain hurdles are leading to delays and increasing costs of logistics and inputs

Logistics and transportation networks have been strained since early in the pandemic, adversely affecting the renewable energy value chain. Another round of strict lockdowns under China's "Zero COVID Policy" has resulted in major shipping delays for solar, wind, and battery components, which bring commensurate increases in development costs, project risks, and project attrition. General freight and shipping costs have also risen sharply: the buildup of ships in port, trucking delays, and high fuel prices have added 6-12 months to delivery timelines in the industry in some cases, and average container prices increased nearly sixfold to over $10,000 USD, with some reports suggesting the upper end topped $18,000 USD towards the end of 2021.[10]

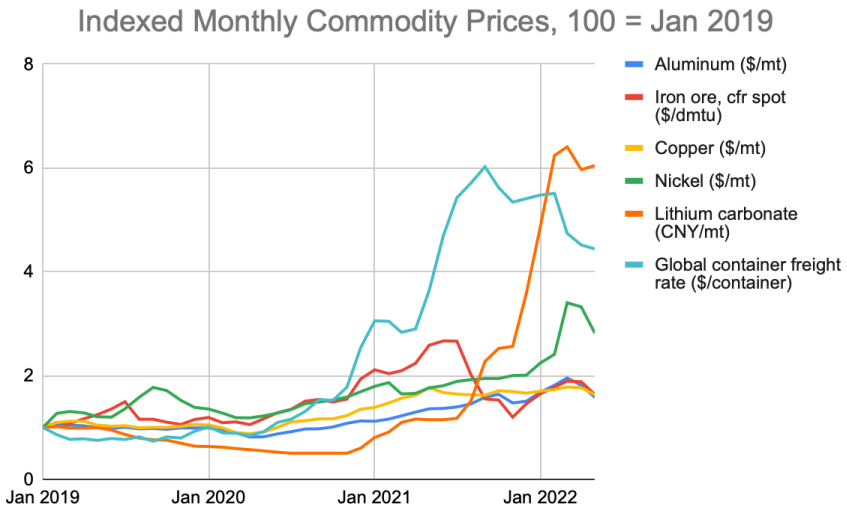
Relevant raw material input prices have also spiked.

- **Steel and iron ore:** The price of steel – used in constructing wind turbine towers and racking, mounting, and tracker systems for solar PV projects – more than doubled in 2021, and prices have not yet come down (though they may start to ease in the second half of 2022).
- **Aluminum:** Used in framing for solar PV projects and to a lesser extent in wind turbine construction, aluminum market prices grew more than 150% between the start of the pandemic and the end of Q1 2022. Prices have started to ease but remain elevated, in part due to European smelters cutting production owing to high energy prices.
- **Copper:** Used in electrical balance of systems for solar PV, coils for turbines in wind projects, and general electrical wiring, copper spot prices doubled throughout the pandemic, due to slowing growth in new mining and high energy costs for refining, among other factors.
- **Polysilicon:** Raw polysilicon – the base ingredient in a solar PV module – saw prices top $40/kg due to a 'bullwhip effect' with the demand pull of the global solar industry. A short while after COVID lockdowns slowed what had previously been high and scaling production, demand surged back and manufacturers could not keep up, resulting in PV module prices going back up to $0.26/W-$0.29/W and the first sustained price increase for solar PV components since the polysilicon price spike of 2011, when annual demand was less than 20% of expected 2022 installations.[11]
- **Battery metals:** Though the market penetration of battery energy storage is still low in under-electrified contexts, a similar story is playing out in the critical minerals that feed the battery supply chain, except the squeeze is two-fold: surging demand from the automotive industry as electric vehicles scale up globally plus the policy-driven supply

[10] Shipping rates from Asia have fallen from their peak in September 2021 but are still five times higher than in 2019.
[11] These cost pressures are most visible in fuel supply, but are affecting clean energy technologies as well: after years of declines, the costs of solar panels and wind turbines are up by between 10% and 20% since 2020. Concerns about cost inflation are a brake on the willingness of companies to increase spending, despite the strong price signals.

constraints resulting from sanctions on Russia. Spot prices for battery-grade lithium shot up from $11,000 per metric ton early last year to more than $50,000 in February 2022 and are at similar levels as of August 2022. Similar spikes have occurred for cobalt, palladium, and especially nickel.[12]

Figure 3: Commodity Prices



Sources: World Bank Group, Commodity Market Update June 2022, Statista, Global Container Freight Index; Trading Economics.

These commodity price increases – combined with jumps in freight, fuel and labor costs – are reflected in project costs. Since last year, the cost of new-build onshore wind rose 7%, and fixed-axis solar jumped 14%, according to the latest analysis by market research firm BloombergNEF (BNEF).

[12] The battery storage sector is particularly sensitive to commodity price volatility. BNEF's battery LCOE benchmark sits at $153/MWh today, up 8.4% compared to 1H 2021. Prices for lithium carbonate, one of the key inputs for lithium-iron-phosphate (LFP) battery systems, surged 379% over the past year.

Figure 4: Silicon and Steel, annual changes

Source: data from IEA, *World Energy Investment 2022: Overview and key findings*

In some markets, policy choices are also weighing down the supply chain.

- **Trade protectionism** is resurging in the renewables industry as the energy transition picks up pace and the US, Europe, and others strive to grow domestic manufacturing capacity. Examples include the Auxin solar tariff case in the US and the Department of Mineral Resources in South Africa mandating more local content than domestic manufacturing capacity can supply (requiring a waiver process).
- **Concerns regarding forced labor** in the Xinjiang province of China, home to 42% of global polysilicon production capacity, prompted the US to enact legislation banning imports containing materials from Xinjiang and forcing importers to map their solar PV supply chains to the raw material level.[13] In overseas markets, this will impact the solar PV projects US development funders, including the Development Finance Corporation (DFC), will be able to support – and may prompt other international funders to adopt similar restrictions.

DRE implications: Rising costs and supply chain delays will stall installations. Solar projects will be especially disrupted by polysilicon tracing requirements that are not yet in place, especially if other funders start to replicate the US approach.

Utility-scale renewables implications: Elevated component pricing will likely alleviate in the near term, yet the pipeline attrition it will yield may ripple into the next few years, given increased uncertainty, especially in places where developers have been confidently bidding on forward price assumptions.

[13] Solar PV Global Supply Chains, IEA, July 2022.

Squeeze #2: Utilities are caught between rising costs and fixed power purchase agreements, pushing investors to find workarounds

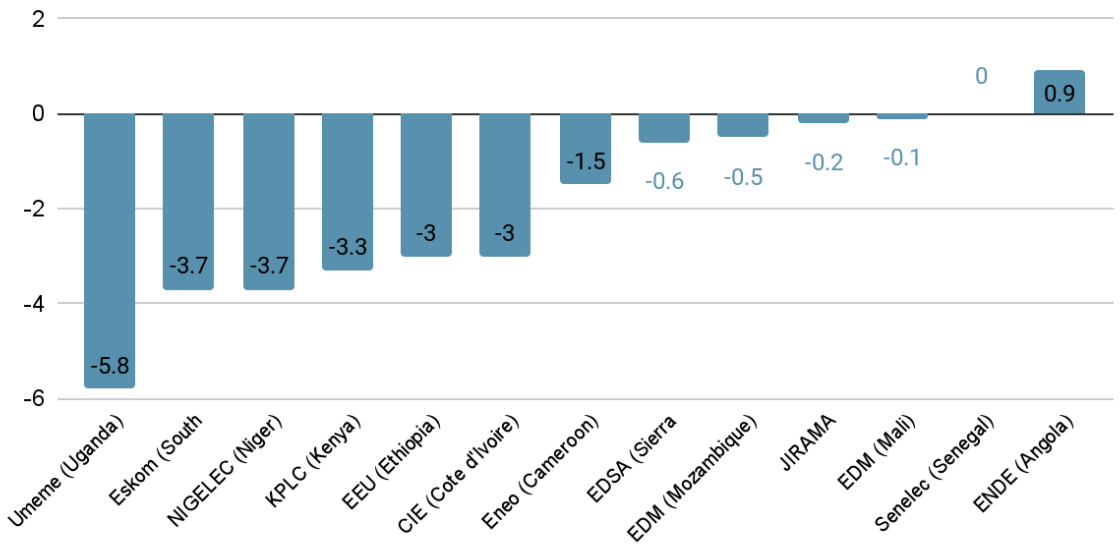
Electric utilities in emerging and frontier economies faced significant financial constraints long before COVID-19 or the more recent economic shocks. In 2018, only a third of African utilities recovered their operating and debt service costs – and that figure drops to one in four if subsidies are excluded.[14] A total of 35 African utilities failed to recover costs *even with* subsidies, making many of them chronically loss-making entities with negative equity.[15] This situation has only worsened over the past decade: between 2012 and 2018, the gap between African utilities' costs and revenues widened significantly, driving an 8% drop in the recovery of operating and debt service costs.[16] This is particularly bad for investment in on-grid generation because financial risk is especially high for distribution utilities, the primary off-takers of new supply. Distribution utilities often cannot cost reflective tariffs, and face a higher implied cost of debt than other utilities, given the frequent involvement of private ownership or participation. Only 20% of African distribution utilities were profitable in 2018.[17]

While this trend is longstanding, pandemic-related shocks (combined with government efforts to cushion consumers) have made it worse. Economic disruptions led to rolling dips in electricity demand, as well as widespread reductions in customers' willingness and ability to pay for electricity. Together, these factors have hammered utility balance sheets, although the effects have varied significantly by country.[18] In many cases, government efforts to provide social support actually exacerbated the negative impact on utilities, as many African countries adopted measures to defer electricity bill payments or cancel them altogether.[19]

[14] Ani Balabanyan et al., Utility Performance and Behavior in Africa Today, World Bank Group, June 2021.
[15] Ani Balabanyan et al., 2021.
[16] Ani Balabanyan et al., 2021.
[17] Ani Balabanyan et al., 2021.
[18] Ani Balabanyan et al., African Utilities during COVID-19, World Bank Group, June 2021.
[19] Mark McCarthy Akrofia and Sarpong Hammond Antwi, COVID-19 energy sector responses in Africa: A review of preliminary government interventions, Energy Res Soc Sci., October 2020.

Figure 5: COVID Lockdown Impacts on Utility Cost Recovery

(% difference from pre-COVID level)



Source: Ani Balabanyan et al., *African Utilities during COVID-19: Challenges and Impacts*, World Bank Group, 2021.[20]

Inflationary pressures have particularly adverse impacts on utilities in regulated, vertically-integrated power sectors. Because under-electrified countries generally lack wholesale or merchant markets, utilities typically sell power to consumers on a fixed price basis – despite the fact that they may have variable (and now rising) costs of procurement. Unlike their counterparts in more deregulated power markets in regions like North America, Europe, Japan, and Australia, utilities in emerging and frontier economies often lack mechanisms to pass rising costs on to customers. They are typically forced to attempt to rate-base rising costs by petitioning to increase consumer tariffs via slow (and often uncertain) regulatory proceedings, adding politically unpopular fuel adjustment surcharges, or absorbing the cost, which most of them are not fiscally positioned to do. And the more a utility needs to rate base fuel costs, the less they will be able to rate base new infrastructure investments or improvements.

These financial pressures exacerbate a longstanding trend that represents one of the most significant (and chronic) barriers to energy investment in emerging and frontier markets. The precarious financials of electric utilities make them high-risk off-takers – so capital is increasingly either avoiding the sector altogether, or finding the path of least resistance around utilities.[21] Increasingly, this means investing directly in comparatively bankable segments of electricity demand, including self-generation and distributed off-grid solutions.

[20] Angola's ENDE serves as an example of a case in which reduced demand actually improved the financial situation because the utility had been losing money with every kWh sold.

[21] Benjamin Attia, Utility 3.0: How Africa is remaking the grid, Wood Mackenzie, March 2022.

While the DRE sector will face challenges, the worsening financial crises hitting utilities may drive more customers off-grid. As of 2020, sub-Saharan Africa had an estimated 370 million private solar home system consumers and 250,000 private mini-grid consumers.[22] While many of these operators have been challenged by the recent economic shocks, off-grid generation will play a major role in any scenario achieving universal electricity access in Africa – and the industry provides investors with an attractive pathway to avoid worsening utility risk. On the commercial side, large energy-intensive customers are increasingly turning to captive renewable generation. Nearly two-thirds of mines in sub-Saharan Africa have procured (or are in the process of procuring) onsite renewable power, largely to reduce costs and increase reliability.[23] Where permitted under regulatory structures, corporate Power Purchase Agreements (PPAs) may take a larger share of renewable PPA demand since signing with a public entity without a sovereign guarantee is often untenable for private capital.

But DRE can only address portions of residential and SME demand, not larger industrial loads needed to power economic growth – so scaling investment in centralized renewables will require increased risk mitigation and a new approach to development assistance. In the face of rising off-taker risk, facilitating investment in new renewable generation increasingly requires financial guarantees and other risk mitigation measures. But most development finance institutions (DFIs) only guarantee the private sector sponsor, meaning even projects guaranteed by external lenders ultimately add to the local government's sovereign debt.[24] Moreover, many of the tools available from development partners to support clean energy focus predominantly on supporting private investment – leaving comparatively few options to meaningfully manage utility risk. Addressing the root causes of utility collapse will require development partners to advance beyond a focus on enabling private sector investment, to developing new and more innovative ways to support public entities and public infrastructure.

DRE implications: Utility financial stress will escalate demand for captive power options by corporations and other decentralized solutions by consumers. Governments, however, will likely seek ways to protect their utilities, and thus could respond with additional policy measures that may constrain DRE.

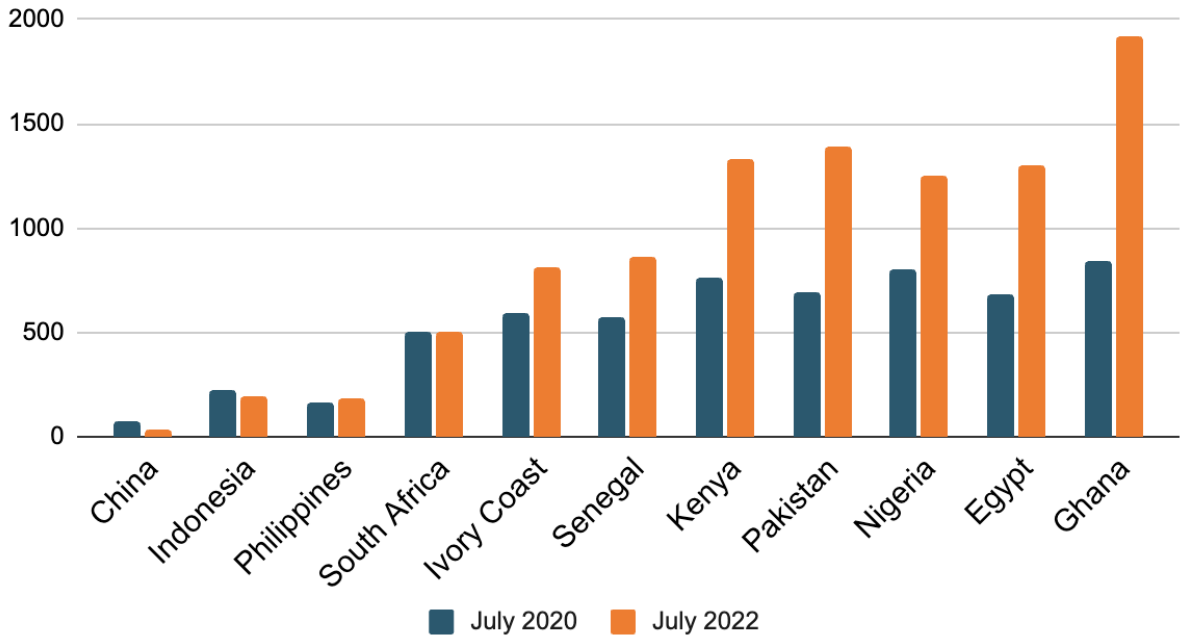
[22] Attia, 2022.
[23] Attia, 2022.
[24] Todd Moss and Rushaiya Ibrahim-Tanko, "The Other Hidden Debt - How power contract transparency can help prevent future debt risk," Public Financial Management blog, IMF, June 21, 2022.

Squeeze #3: Tightening monetary policy and rising interest rates are driving up the costs of capital, especially impacting CapEx-heavy clean energy

Rising global interest rates and an increasingly unstable macroeconomic environment are having disproportionately negative effects on capital-intensive renewable markets – particularly in emerging and frontier economies. These markets already face higher risk premiums: economy-wide financing costs in Africa can be more than seven times higher than those in Europe or North America, reflecting both country-related risks and the region's underdeveloped local financial ecosystems.[25] In the years leading up to 2020, economy-wide debt financing costs generally came down around the world, including in emerging and frontier economies – but that is changing now.[26]

Figure 6: Country Risk Premiums, 2020 vs 2022

(Spread Over Comparable US Treasury in Basis Points)



Source: JP Morgan's EMBIG (USD) emerging market bond index, July 2020 and 2022.

Rising interest rates mean higher capital costs for all new infrastructure investments – but they disproportionately impact investments in utility-scale renewable generation. These projects – compared to fossil fuel-fired plants and other components of the clean energy transition (such as grids, storage, and buildings) – are more capital intensive and depend more

[25] IEA, Africa Energy Outlook, 2022.
[26] The cost of capital in clean energy transitions, IEA, December 2021.

heavily on debt financing than on equity. In Ghana, for example, higher cost of capital means electricity from an unsubsidized solar plus storage plant would cost approximately 140% more than it would in the US. By comparison, power from a combined cycle gas plant – with fewer upfront capital requirements – would cost only 33% more.[27] This differential, set to widen further as interest rates rise, hurts the cost competitiveness of renewable options and could make clean energy projects increasingly dependent on outside support and credit enhancements.

Table 1: Levelized Cost of Electricity in US vs Ghana (US$/kWh)

	US	Ghana
Solar PV w/ Single Axis Tracking + Battery Storage	0.12	0.29
Solar PV w/ Single Axis Tracking	0.09	0.21
Combined-Cycle 2x2x1	0.09	0.12

Source: Jacob Kincer & Todd Moss, "Rising rates are especially bad news for clean energy In Africa," *Energy for Growth Hub*, August 2022; estimates using NREL calculator.

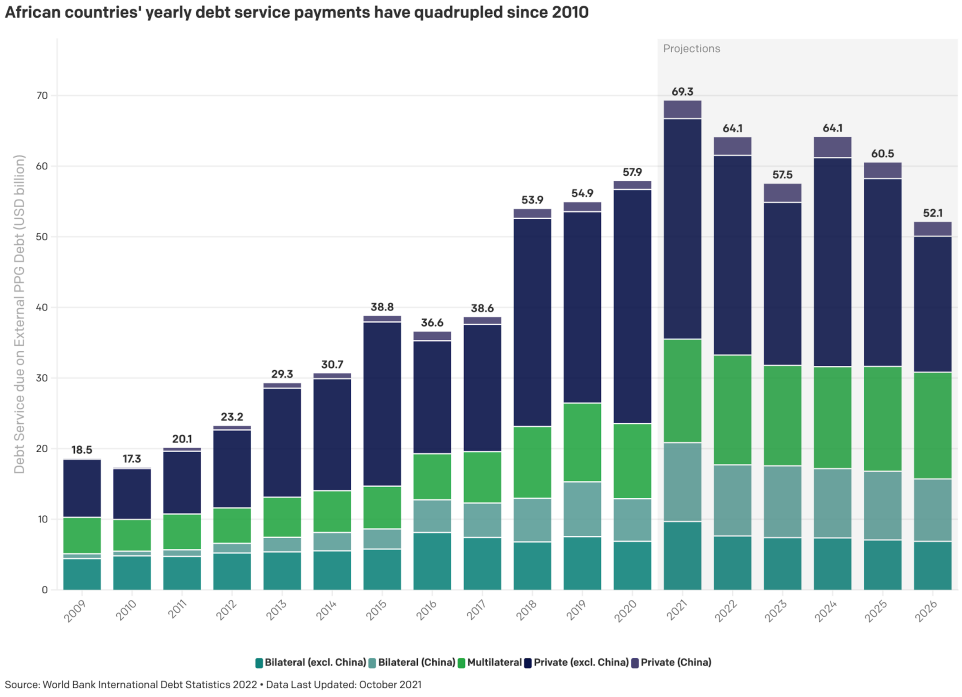
DRE implications: Rising rates will negatively impact all emerging markets investment, while steeply rising borrowing costs (or expected rates of return on equity) will greatly limit available capital in the energy sector. Cost of capital will put upward pressure on pricing, which will impact demand, especially at the bottom of the pyramid.

Squeeze #4: Public sector appetite for new PPAs and investment in enabling infrastructure is waning

Many under-electrified countries were already carrying high public debt burdens into the pandemic, which only eroded any remaining fiscal cushion to help weather the storm.[28] High sovereign debt levels increase sovereign and macroeconomic risks, pushing up the cost of capital or canceling the effects of loosening monetary policy measures meant to stimulate borrowing and spending. More than half of low-income countries are in debt distress or at high risk of it, including at least 23 African nations. Across sub-Saharan Africa, sovereign debt rose from 30% of GDP in 2014 to 50% in 2019 and to 57% in 2020.[29] In many markets, energy subsidy schemes or defaulted PPAs have contributed to rising debt. A rising interest rate environment in hard currency economies has knock-on effects on the cost of borrowing in volatile local currency markets, and could lead to additional debt distress and even defaults.

[27] LCOE does not necessarily reflect the cost of electricity to end-users.
[28] IEA, Africa Energy Outlook, 2022.
[29] IEA, Africa Energy Outlook, 2022.

Figure 7: Annual Debt Service Payment Trends and Projections, 2009-2026



Source: ONE, "Data Dive: An urgent plan to avert the debt crisis".[30]

Higher borrowing rates will constrain public infrastructure spending in the years ahead, including for guaranteeing contracts for new generation and – crucially – on power transmission and distribution projects needed to enable clean energy expansion. Many African governments are reaching capacity in providing guarantees supporting PPAs that backstop the payment and performance obligations of state utilities, which can further impede investments. The associated increase in sovereign risk reduces private sector interest in signing a bilateral PPA with a public entity, and more importantly, dries up public sector appetite for new PPAs. Multilateral liquidity guarantees and political risk insurance can help keep private capital at the table, but the World Bank's lending constraints often cap infrastructure spending in debt-distressed contexts, limiting the size and scale of the support.

DRE implications: The slowdown in centralized investments is potentially helpful in stoking demand for decentralized solutions. Where permitted under regulatory structures, corporate PPAs may take a larger share of renewable PPA demand since signing with a public entity without a sovereign guarantee is often untenable for private capital.

[30] This analysis by The ONE Campaign based on the 2022 International Debt Statistics (IDS) data, available at: https://www.worldbank.org/en/programs/debt-statistics/ids/products. Data last updated October 2021.

Conclusion: Priority Actions to Address these Four Squeezes

A thriving global energy sector that can deliver on SDG7 ultimately requires functioning markets and low interest rates that are beyond the scope of narrow energy sector policy. However, governments and development financiers can mitigate the long-term effects of the current disruptions by taking several direct steps:

1. Support more aggressive diversification of the global renewable energy supply chain.
    a. **Expand investment in clean energy manufacturing based in emerging markets,** such as the US DFC's's debt financing for First Solar's thin film solar manufacturing facility in India.
    b. **Push bilateral development partners to relax protectionist standards for lower-income markets.** The First Solar deal was a relative outlier, and will not be easy to replicate without a more flexible approach to development finance. As industrialized economies seek to bolster their own domestic manufacturing, bilateral DFIs will face increasing pressure to limit support for projects that may compete with domestic industry, posing a real risk to international investment.
    c. **Increase DFI support for mineral extraction and mineral processing**, with a focus on transparency and standards enforcement. DFIs' traditional hesitancy to engage in the mining industry has valid roots, but poses a major barrier to safely diversifying and expanding the clean energy supply chain. Partnering with countries to develop mining capacity with a strong focus on transparency and standards presents an opportunity to address supply chain risks while improving social and environmental conditions.
    d. **Promote and adopt a common set of traceability standards for supply chain mapping.** The human rights concerns embedded in clean energy supply chains are not going away – and will become more important as the industry grows. Piecemeal responses adopted by individual countries and funders will be less effective (and more detrimental to the industry) than a common, standardized approach that provides clarity and consistency to the market.
2. Expand the tools available to support distressed utilities.
    a. **Push the World Bank and other major multilateral lenders to modernize their approach to supporting utilities and grid infrastructure.** While private finance for new generation is available, public funding for utility reform and grid investment is increasingly urgent. The need for high-performing utilities and flexible grid systems are not going away – indeed, they both become more important in a high-renewables future. Past efforts at utility reform and public grid expansion (often heavily financed by MDBs) have largely been disappointing, yet abandoning them completely is a non-starter. The current crisis should push funders to reinvent and expand the tools available to make utilities solvent and massively expand transmission and distribution infrastructure.

b. **Launch a performance-based concessional capital and grant funding facility for utilities.** The majority of utilities in frontier markets are state-owned public entities, making it difficult for development partners armed primarily with tools to catalyze private investment to intervene. Expanded deployment of contract-based models like those employed by the US Millennium Challenge Corporation could be a valuable tool for utility strengthening. This approach would pair significant grant funding for public infrastructure and institutions with a performance-based incentive structure advancing key reforms identified jointly with the utility.

c. **Ensure that country-specific climate finance packages include utility support.** A growing focus on country-specific climate finance agreements, such as the South Africa Just Energy Transition Partnership (JETP) and similar efforts, represent a promising potential model. But they should include support not only for decarbonization and clean energy deployment, but also utility strengthening, recapitalization, and grid infrastructure. A narrow focus on new generation that does not address underlying risks may worsen a market's long-term prospects.

3. Provide aggressive countercyclical financing.

a. **Launch JETP-style packages for more countries at risk, beyond coal producers.** The JETP model is promising in that it shifts the climate finance discussion away from vague global commitments and instead channels targeted public and private resources into one country for an agreed set of specific investments. Ideally, it should reflect that market's particular transition needs. But the current enthusiasm for JETP approaches focuses predominantly on energy-intense coal economies, leaving most energy-poor countries (particularly in Africa) behind. The model should be expanded to include these other countries, and to fully account for their transition needs.

b. **Create a Climate Finance Global Guarantee Facility.** While individual DFIs already provide financial guarantees on clean energy projects, the use of this tool will likely need to be expanded in the event of an extended economic downturn in order to stem the flight of capital to safer assets. A global guarantee facility would mitigate investor risk in the clean energy sector, while also giving developers more options.

4. Aggregate procurement, particularly for DRE.

a. **Launch a platform to aggregate individual smaller-scale projects in high-risk markets.** In many cases, the limited size of projects in emerging and frontier markets – particularly in the DRE sector – aggravates costs, delays, and supply chain hurdles that ultimately make success much more difficult. In a tight global supply marketplace, smaller buyers in higher-risk markets will get pushed to the end of the line. A dedicated platform run by a proven agent, through which orders from individual developers could be packaged, batched, and supplied, would help smooth this process for smaller-scale projects and take advantage of economies of scale.