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Africa–China Cooperation in Green Electrification

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Executive summary

Africa's economic future depends fundamentally on rapidly expanding broad-based electrification. This is key to scaling up industrialisation, creating jobs and building consumer markets to take advantage of Africa's burgeoning youth demographic. China is the global leader in green energy technology, a major provider of project financing and engineering, procurement and construction (EPC) and a long-term development partner to the continent. The relationship offers great potential to boost sustainable electrification in Africa. However, the green energy space is increasingly affected by geopolitical and trade pressures. This policy brief provides insights on how to navigate this space and how the continent can maximise outcomes from its relationship with China. It lays out the main domestic drivers of external energy provision within China, showing how factors such as a focus on national security, along with shifts in industrial policy and financing, primed China to use green energy as a vector for international relations. It then provides suggestions on how African countries can shape domestic processes to take advantage of these opportunities.

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Introduction

Africa is confronting a polycrisis. While the continent's youth wave offers significant opportunities, it also exacerbates the ongoing infrastructure deficit. Simply building enough infrastructure to keep up with population growth is already challenging, but Africa also faces an ongoing historical infrastructure gap, an after-effect of colonialism. The fact that infrastructure provision is not keeping up in turn strains development. This is especially true for electricity infrastructure – 43% of Africans currently do not have access to dependable electricity.[1] The development–energy deficit facing the continent is crucially linked to the gathering climate breakdown. Africa's historical emissions are near-negligible, but it faces a heavy impact from climate change. The World Meteorological Association estimates that African countries lose 2–5% of GDP owing to an increasingly disordered climate.[2] The disruption further complicates countries' development trajectories, while delayed development, in turn, plunges the continent's youth into danger.

That said, the continent also has some options to increase electrification rapidly. This policy briefing argues that the current US–China geopolitical tensions are overlapping with domestic shifts within China to create a window of opportunity for African countries seeking to electrify at speed. The current alignment of industrial planning and political will behind China's domestic renewables industry coincides with a renewed focus on South–South cooperation due to tensions with the US. The overlap of internal and external factors is helping both to drive down prices for renewables and to bring China back to the African infrastructure space after a sharp retreat during the COVID-19 crisis.

The policy briefing first lays out some of the domestic and transnational trends that boosted China's role as a global leader on renewable energy. It shows how this leadership reflects both internal industrial planning and global security concerns. It also maps the growing centrality of green energy in the Belt and Road initiative (BRI) and China's engagement with the Global South. It concludes with recommendations for how African countries can take advantage of this opportunity by using green electrification to address infrastructure and development backlogs while pushing forward African responses to climate change.

Navigating the changing geopolitics of climate

Africa's options for addressing its climate/development/infrastructure polycrisis partly depend on effective cooperation with external partners. Domestic shifts in some of these external partner countries have rapidly revised these options. In particular, the US has implemented significant policy changes since the start of President Donald

1 International Energy Agency, *Africa Energy Outlook 2022*, Report (IEA, 2022).
2 World Meteorological Organization, *State of the climate in Africa 2023*, Report (WMO, 2024).

Trump's second term. These include a domestic pivot away from legislation aimed at decarbonising the US economy in favour of a renewed commitment to hydrocarbons. This is twinned with the US's withdrawal from the Paris Climate Agreement,[3] which has lessened its role in climate norm-setting globally. At the same time, the Trump administration has drastically scaled back foreign assistance to Africa. This has included pulling out from South Africa's Just Energy Transition Partnership (JETP) but not (so far) cancelling other climate-related projects such as the Lobito rail and logistics corridor linking the Democratic Republic of Congo with Angola. Yet, it has raised questions both about whether the project will shift in response to policy changes in the US and whether some commitments (for example, to green electrification) will be honoured.[4]

More broadly, the Trump administration's retreat from climate leadership has coincided with the imposition of broad tariffs on imports. These have added to Biden-era duties on Chinese renewable energy products aimed at curbing Chinese control of global supply chains.[5] The subsequent tariffs have targeted imports from China and South-East Asia, where component manufacturing has been bolstered through offshoring by Chinese corporations.[6]

These pressures have significantly complicated Africa's choice of external partners for its electrification drive. However, as is shown below, larger geopolitical trends have also created new opportunities for collaborating with China. While domestic political tides have turned against international climate and energy action in the US, the opposite is true for China. Domestic factors are aligning to make sustainable energy more central to both China's domestic development policy and its wider relationship with the Global South. This potentially offers significant gains for the continent and should be considered in the wider planning around green electrification.

Domestic factors in China's green energy revolution

National security

One of the hallmarks of Chinese President Xi Jinping's administration has been a cross-cutting focus on national security. Some have argued that Xi's focus on national security

3 Sebastian Rodriguez, "Trump's First 100 Days: US Walks Away from Global Climate Action", *Climate Home News*, April 29, 2025

4 E.D. Wala Chabala and Judy Hofmeyr, "A Game Changer in Flux: Recent Developments and Risks in the Lobito Corridor" (Short Analysis, African Policy Research Institute, May 5, 2025).

5 Philip Neuffer, "Biden Orders up to 50% Tariffs on Some Solar Energy Components from China", *Utility Dive*, December 12, 2024.

6 Luna Sun, "Chinese Solar Firms Ramping Up Investment in Southeast Asia to Evade US, European Trade Tensions", *South China Morning Post*, July 29, 2022.

has set a new paradigm for planning more broadly,[7] with numerous sectors being reframed through the logic of securitisation. Energy security is a key example. On the hydrocarbon side of the energy economy, this has led to the rapid diversification of China's oil and gas purchases. The country has lessened its dependence on US shale gas and oil and increased buying from newer partners such as Saudi Arabia and the United Arab Emirates.[8]

One of the key factors behind this shift is the worry that Chinese oil and gas imports could be blocked in the event of external conflict. China's planning of overland logistics corridors to Central and South-East Asia is partly owing to the need to avoid maritime choke points such as the Straits of Malacca that could be weaponised by external powers.[9]

Xi's national security policy is also driving China's swift expansion towards green energy, in no small part due to conceptual expansions of national security. The first such expansion is into environmental security. China paid a steep environmental toll for its rapid development. The country's air and water quality were notoriously bad, triggering a domestic backlash.[10] The Communist Party of China (CPC) government responded with both tightened regulation and the rhetoric of a clean environment adding to national development and national security. At the opening of the 20th CPC Congress in 2022, Xi underlined this theme: 'Clean water and green hills are hills of gold and silver.'[11]

Manufacturing

The need to reduce foreign imports on national security grounds was echoed by the need for industrial planning informed by this national security focus. The Made in China 2025 development plan announced in 2015 was a key example.[12] The strategy identified sectors such as electric vehicles and sustainable energy as central to China's development, while making it clear that such development, in turn, is indispensable for national security.

The political will unleashed by the national security turn towards sustainable energy significantly boosted other forms of state support for the sector. Solar manufacturing was identified as a vector for developing the country's poor inland provinces, and the goal was pursued through both state support and large-scale private sector investment.[13] The resultant competition between different firms aided the development of component and

7 Katja Drinhausen and Helena Legarda, "*Comprehensive National Security" Unleashed: How Xi's Approach Shapes China's Policies at Home and Abroad*, Report (Merics, September 15, 2022).
8 Marianna Morra-Skryabina and Kevin Tu, "Overview of China's Energy Transition 2022" (Agora Energiewende, 2023).
9 Gabriel Collins, "A Maritime Oil Blockade Against China: Tactically Tempting but Strategically Flawed", *Naval War College Review* 71, no. 2 (Spring 2018).
10 George Gao, "As Smog Hangs Over Beijing, Chinese Cite Air Pollution as Major Concern", Pew Research Center, Short Reads, December 10, 2015.
11 "Xi Story: Green is Gold, for a Shared Future", *Xinhua*, December 21, 2022.
12 James McBride and Andrew Chatzky, "Is 'Made in China 2025' a Threat to Global Trade?", Council on Foreign Relations, Backgrounder, May 13, 2019.
13 Giulia Interesse, "China's New Renewable Energy Plan: Key Insights for Businesses", China Briefing, November 26, 2024.

adjacent industries. Overall, this establishment of a renewable energy ecosystem fostered Chinese leadership in all renewable sectors, from solar panels and energy storage to grids.[14]

China overtook Germany as the world's largest solar producer in 2015.[15] About 80% of the world's solar components are currently produced in China, and the country has similar leads in a host of related industries. The International Energy Agency estimates that China invested about 10 times more than Europe in this sector between 2011 and 2022, and Chinese companies lead adjacent renewable industries such as wind power.[16] The critical mass of Chinese industry in the global renewables sector has also fuelled increasing offshoring to other countries. The rapid move to regions such as South-East Asia was partly to avoid rising import barriers imposed by wealthy markets, as well as a response to high levels of competition in China and the need to find regional markets with high demand.

Financing

China is a major financer of energy infrastructure in the Global South. Between 2010 and 2021, Chinese financiers spent about $18 billion annually on energy projects around the world.[17] Until 2021, many of these were for coal-fired power plants. The historical bias towards overseas coal power projects among China's state-owned enterprises changed with Xi's announcement in 2021 that the country would stop funding coal plants overseas.[18] This announcement coincided with two larger trends that caused the sudden drop in Chinese financing flows to Africa.[19] First, from about 2017 Chinese lenders responded to elevated debt levels in the Global South. Second, the COVID-19 crisis and the Chinese government's subsequent zero-COVID measures caused a large-scale retreat of Chinese project financing, with funding in certain developing regions falling to near zero.[20]

China returned to the funding space around 2023, with a new set of priorities. Chinese lenders now favoured a 'small is beautiful' approach, with smaller projects and shorter repayment windows. This coincided with a shift to promoting renewable energy. At the same time, current funding models favour mixed financing models with a lower sovereign debt impact and greater involvement by Chinese companies.[21]

14 "How Xi Sparked China's Energy Revolution", *Financial Times*, May 11, 2025.
15 Adam Rose, "China's Solar Capacity Overtakes Germany in 2015, Industry Data Show", *Reuters*, January 21, 2016.
16 IEA, *Solar PV Global Supply Chains*, Report (IEA, 2022).
17 Elena Kiryakova et al., *China's Evolving Role in Africa's Energy Transition*, Report (ODI Global, April 2025).
18 Daniel Nesan, *Three Years Later: Impacts of China's Overseas Coal Power Ban*, Report (Center for Research on Energy and Clean Air, November 2024).
19 Cobus van Staden, "New Trends in Chinese Infrastructure Lending to Africa" (Policy Briefing 274, South African Institute of International Affairs, 2023).
20 Rebecca Ray and Margaret Meyers, "China's Lending to Latin America and the Caribbean Begins Again with Smaller, Targeted Support", China–Global South Project, March 28, 2023.
21 Boston University Global Development Policy Center, "'Small is Beautiful': A New Era in China's Overseas Development Finance?", January 19, 2023.

Political will and energy diplomacy

The domestic pivot towards green energy was echoed by diplomatic outreach to the Global South when China returned to the world stage during the Belt and Road Forum of 2023.[22]

In addition to the rhetoric of 'small is beautiful', the version of the BRI promoted subsequently has included significant new standard-setting by the Chinese state, aimed at improving project sustainability, as well as ESG standards.[23] In addition, national policy shifts increased the commitment to green energy among China's state-owned enterprises and the promotion of its private sector leaders in the field.

This was underlined by the promotion of green industrialisation as part of China's broader outreach to the Global South under the banner of modernisation, as was evident at the 2024 Forum on China–Africa Cooperation (FOCAC). In addition to Xi's broad rhetoric of South–South cooperation on green industrialisation as an instance of modernisation that reverses the earlier violence of colonial industrialisation,[24] FOCAC also committed China to 30 clean energy projects across Africa and investment in the African green electricity and electric vehicle spaces.[25]

Aligning African needs with Chinese priorities

The alignment of Chinese domestic trends and its diplomatic outreach coincides with heightened tensions between China and the US, which have manifested in a trade war that specifically targets high-technology sectors. While the rhetorical framing of green energy as a space for South–South cooperation preceded the second Trump term, the trade war has added impetus to this trend.

Specifically, the high tariffs Chinese companies face in the Global North are leading them to explore new markets in the developing world. While many complications still have to be resolved, this theoretically means that price-sensitive developing countries could buy these components at lower prices than the developed world. In some developing countries such as South Africa, local energy crises have already led to large-scale imports of such components via the private sector.[26]

22 People's Republic of China, State Council Information Office, "The Belt and Road Initiative: A Key Pillar for a Community of Shared Future", Third Belt and Road Forum for International Cooperation, October 2023.

23 BRI International Green Development Coalition, "Green Development Guidance for BRI Projects Phase II Task I" (BRIGC Policy Study Series, 2021).

24 "Keynote Address by Chinese President Xi Jinping at Opening Ceremony of 2024 FOCAC Summit", *Xinhua*, September 5, 2025.

25 Asia Pacific Task Force, "China–Africa Relations in Transition: The 2024 FOCAC Summit and Its Implications", Beyond the Horizon, September 18, 2024.

26 "South Africa's Solar Panel Imports from China Skyrocket", AfricaNews, August 13, 2024.

Beyond price, the current need for China to build alliances in the Global South in the face of increased pressure in the Global North arguably also opens a window of opportunity for African governments to expand green electrification in collaboration with China. While African governments face ongoing financing shortfalls, the combination of tariff-free components and the political will behind 'small is beautiful' BRI projects could create a unique opportunity for the continent. However, taking advantage of it depends on aligning domestic factors within African countries.

Strategic planning

A general truism about China–Global South interactions is that, because of the unique breadth of Chinese manufacturing and contracting, China can provide anything. Chinese output ranges from the shoddiest to the most sophisticated, depending on which Chinese partner one chooses.

This reality puts outsized responsibility on recipient governments to craft fine-grained regulations to ensure high environmental, social and transparency standards – and to make sure that these are implemented. This includes creating empowered and cross-departmental negotiating teams, as well as on-the-ground inspectors with the mandate to ensure the highest levels of project implementation.

However, beyond the specific project, the sustainability of Chinese projects also depends on broad strategic planning. This includes determining the relevant path to profitability of individual projects through extensive prefeasibility studies to choose the most suitable solution, backed up by feasibility studies to ensure the developmental impact of the project throughout its lifecycle. In addition, project planning should take into account how it will fit into broader national development and job creation strategies. Such planning would help to avoid maladaptation, in the form of inappropriate technologies being shoehorned into contexts where they do not work and broader ESG failures that affect local communities.

Project pipeline

One of the main ways of ensuring that individual projects provide the maximum developmental impact is by developing and professionalising the project development process itself. This entails standardising the project development process through prefeasibility, feasibility and subsequent stages. It also demands setting in place a bureaucratic ecosystem of officials dedicated to the ongoing development and implementation of projects in a way that feeds into national development plans. In interviews with senior Kenyan officials driving the country's climate policy, the establishment of an ongoing project pipeline was identified as a key factor in the country's renewables sector – arguably the most advanced in Africa.[27]

27 Author interviews with Dr Pacifica Ogola, Director: Climate Change, Kenyan Ministry of Environment and Forestry, and Rodney Omari, Director: Kenyan Ministry of Environment and Forestry, April 14, 2025.

In drawing comparisons between Kenya and neighbouring countries, the official highlighted the importance of an ongoing pipeline not only in the successful implementation of individual projects but also for the development of successful national and regional energy strategies. The sustainable financing and implementation of projects depend on the setting of universal project benchmarks across various timelines. While this helps to ensure timeous delivery, it also aids the establishment of integrated national and regional projects that ensure cross-cutting development gains that do not leave local constituencies behind.

Innovative financing

Mobilising financing remains one of the most challenging aspects of African green electrification. Beyond the difficulties of raising financing for specific projects, the need for cross-cutting regional systems that facilitate ongoing project pipelines and regional integration raises additional financing pressures. Part of this challenge lies in how project financing is conceptualised by different funders. For example, the G7-led JETP with South Africa was marked by complex negotiations aimed at interlocking projects including stakeholders from various state, private sector and civil society actors. The cross-cutting approach has the downside of a significant debt burden, which has complicated negotiations.[28]

In contrast, Chinese projects have traditionally shown the opposite tendency. The project-specific focus of many BRI projects has left many of the development impacts up to recipient country planning. This has sometimes led to projects not delivering the desired development impact. Newer models have seen companies taking a more robust stake in the post-delivery lifespan. In some cases, this has included operating the project for a set period before handing it over to local stakeholders. This facilitates the training of local staff and increases the Chinese contractor's buy-in to the ongoing success of the project. This commitment is reflected in recent initiatives where Chinese companies take an equity stake in projects, for example in the Lekki port in Nigeria,[29] or where they operate the projects over several years as a way to recoup their investment and lessen sovereign loans.

These projects have shown Chinese contractors to be willing to explore mixed finance models that reduce reliance on sovereign debt. However, crafting more such mechanisms, especially ones that crowd in African financing, remains an ongoing challenge.

28 Bretton Woods Project, "World Bank's $1 Billion Loan to South Africa Risks Undermining Just Transition by Doubling Down on 'De-Risking' Private Capital", July 3, 2024.

29 AidData, "China Development Bank Provides $629 Million Loan for Phase 1 of Lekki Deep Water Port Project", Global Chinese Development Finance Database, n.d.

Regional integration

Africa's colonial history has held back regional integration, with piecemeal infrastructure set up to satisfy external priorities. However, the establishment of the African Continental Free Trade Area has set the larger goal of deepening African cross-border connections.

SADC's Southern African Power Pool arguably provides a precedent for regional integration in enabling countries in the region to trade power with their neighbours. The region's high solar and wind energy potential opens the opportunity to greatly increase this energy trade. Chinese actors are already significantly adding to renewable generation capacity in Southern African countries. There is potential for deeper collaboration between Chinese and African private sector actors to strengthen these networks, extending them further into the continent via support from Chinese state funders and Chinese-led multilateral development banks such as the Asian Infrastructure Investment Bank.

This would require African countries to work with their neighbours to craft robust cross-border and regional green electrification and industrialisation strategies that ensure maximum synergy. National developments such as the nascent Zimbabwean lithium refinement sector,[30] growing solar capacity in South Africa[31] and Namibia's incipient green hydrogen sector[32] already provide a glimpse of a regional green industry ecosystem. However, it would depend on regional governments working together to craft cohesive cross-border strategies that could spark national development and that appeal to global funders and companies.

Conclusion

The alignment of industrial trends within China and the geopolitical factors shaping its network-building in the Global South offers a unique window of opportunity for Africa. The combination of Global South-focused political will with the increased flow of low-price, high-quality renewable technologies from China to emerging markets arguably increases green electrification prospects for developing countries. For Africa to fully take advantage of these factors, the continent must bolster national green industrialisation strategies, green energy project pipelines, innovative financing models and regional cooperation.

While diversification of external partners is crucial, China's world-unique advantage in manufacturing – and the Asian giant's long-term relationship with the continent – positions Beijing as a key partner in African electrification. However, ensuring long-term developmental benefits from this cooperation ultimately remains up to the actions of African policymakers.

30 Bloomberg News, "Sinomine Says It Will Build Lithium Sulfate Plant in Zimbabwe", *Mining.com*, September 30, 2024.
31 De Aar Solar, "About", accessed November 5, 2025, https://deaarsolar.co.za/.
32 Namibia Green Hydrogen Project, "Building Towards Namibia's Green Hydrogen Future", accessed November 5, 2025, https://gh2namibia.com/.

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