Fast, Fair, Forever

How Public Finance can Supercharge the Just Energy Transition

DISCUSSION PAPER

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350

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CLIMATE ACTION NETWORK

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Climate Foundation

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Stamp Out Poverty

Stamp Out Poverty was founded in 2006 to campaign for new and additional sources of finance to fight poverty and climate change at home and abroad, helping to create the political space for initiatives such as UNITAID, which has to date generated several billion dollars for HIV/AIDS, TB and malaria treatments, with more than half the revenue raised from aviation levies. Stamp Out Poverty led work internationally for the Financial Transactions Tax, creating the very popular Robin Hood Tax campaign that spread across the world in the aftermath of the financial crisis. In 2018, work pivoted to the climate emergency, most particularly to the issue of loss and damage. To build this campaign, Stamp Out Poverty established the Make Polluters Pay coalition in 2021, working with international partners to win agreement for the setting up of a Loss and Damage Fund at COP27.

Stamp Out Poverty's vision for a fossil fuel-free world has seen it become a UK partner of the Fossil Fuel Non-Proliferation Treaty campaign and spearhead work with like-minded NGOs to supercharge the Just Energy Transition.

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Executive Summary

The world stands at a crossroads, facing the twin challenge of needing to rapidly cut emissions to avert catastrophic climate change while ensuring billions of people in the developing world gain access to modern energy for a dignified life. The only viable path forward is a just and equitable energy transition—a fundamental shift away from fossil fuels to a future powered by renewables, but one that is deliberately designed to be fair, inclusive, and that puts people and communities at its core.

Achieving this transition is not merely a technological or political challenge; it is, fundamentally, a public finance challenge. The historical record and current realities compellingly demonstrate that a large-scale shift to renewable energy does not happen on its own. Private finance, driven by profit, does not lead the charge into new, unproven sectors. It follows where public finance has already paved the road, absorbed the initial risks, and set a clear strategic direction.

The renewable energy revolution of the last two decades was not born from market forces alone but was underwritten by public investment. Examples from across the globe prove this principle:

- India's world-leading solar expansion is being driven by ambitious national missions and significant public investment designed to de-risk projects and build a domestic manufacturing base.
- In Brazil, the national development bank, BNDES, was the historical cornerstone for renewable projects, and innovative public finance vehicles continue to be essential in absorbing early-stage risks to attract private capital.
- China's ability to manage a just transition in its coal regions relies on massive, targeted public funds—from central government transfers to support economic diversification to special funds for worker retraining and social security.
- In Chile, the government is actively steering its coal phase-out not by waiting for the market, but by providing regulatory certainty, mobilizing international climate finance, and investing public resources in grid modernization and social programs for affected communities.

For many nations, this reliance on public finance is absolute. For a Small Island Developing State like Vanuatu, the entire national plan to transition to nearly 100% renewable energy is explicitly conditional on receiving international public financial support. For the most vulnerable, the transition is not simply harder without public finance – it is impossible.

However, experience also provides a stark warning. As the case of Australia shows, public finance can successfully catalyze a boom in renewable energy generation while failing the test of justice by inadequately respecting First Nations' rights and equitable benefit. Similarly, in India, the push for large-scale solar parks has, in some cases, led to the dispossession of marginalized communities, demonstrating a critical gap in ensuring the transition is truly just.

Therefore, public finance is more than a tool to simply lure private capital; it is the linchpin of the entire transition. It must be wielded to drive systemic change, address historical injustice, ensure no one is left behind, and prevent new forms of exploitation. Aligning and scaling up public investment—away from the fossil fuels that are causing the crisis and toward a truly just and equitable energy transition—is the most decisive factor in securing a sustainable and prosperous future for all.

Introduction

Climate change poses serious and irreversible threats, and the window to act is rapidly closing. The latest science warns that without deep, immediate emissions cuts across all sectors this decade, the world will miss the chance to limit warming to 1.5 or even 2°C.[1] At the same time, billions of people still lack reliable modern energy, highlighting a development crisis alongside the climate crisis.

The world faces the twin challenge of needing to rapidly cut emissions to avert climate catastrophe while ensuring secure, modern energy access for billions. A false narrative often pits climate action against development, suggesting that nations in the Global South must choose between lifting their populations out of energy poverty and protecting the planet.

The only viable path forward is a just and equitable energy transition that achieves both goals simultaneously – a shift to clean energy that is fair, inclusive, and systemic. This transition, however, hinges on a critical, yet often misunderstood, enabler: public finance.

This discussion paper provides a framework for understanding and mobilizing public finance as the primary engine for a just and equitable energy transition. It lays out the principles of such a transition, confronts the barriers preventing its realization, and offers concrete recommendations for the way forward.

First, the paper defines establishes the urgency of tackling the dual imperatives of climate action and energy access, arguing that these goals are not in conflict but can be mutually reinforcing through a rapid scale-up of renewable energy. It then defines what a "Just and Equitable Energy Transition" entails, moving beyond a simple technological swap to a comprehensive approach rooted in social justice, fairness in energy access, and the protection of workers and communities.

The core of the analysis then turns to the role of public finance. We examine how it must function as more than just a tool to de-risk private investment; it must be a transformational force that drives systemic change, particularly in countries where the state and State-Owned Enterprises are key economic actors. The discussion explores why international public finance is critical for equity, for fulfilling global commitments, and for accelerating the innovation needed to power the transition.

We also confront a difficult truth: vast sums of public finance are available but are often directed to the wrong places, continuing to subsidize the fossil fuel industry instead of funding the transition. We investigate the systemic obstacles that perpetuate this misalignment, from the crippling burden of sovereign debt to contradictory policy advice from international institutions that can undermine national climate goals. Throughout this discussion, we draw on diverse case studies – from the utility-scale solar roll-out in India and the managed coal phase-out in Chile to the experiences of China, Brazil, and the climate-vulnerable Pacific nation of Vanuatu – to provide real-world context for both the challenges and the opportunities.

Finally, the paper concludes by outlining a series of clear policy recommendations underlining that public finance must act as a transformational tool that can drive systemic change toward a just, equitable, and rapid energy transition that secures a sustainable and prosperous future for all.

1 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023*. Summary for Policymakers

1. The Twin Challenge: Urgent Climate Action and Energy Access

The world faces a dual imperative: we must dramatically cut greenhouse gas emissions to avert catastrophic climate change and ensure all people have access to affordable, secure renewable energy. This does not in any way mean that developing and developed economies alike need to fall back on fossil energy for energy security, on the contrary, it means that investing in renewable energy can simultaneously drive down emissions and improve energy security and affordability.

The urgency of climate action is unequivocal. The IPCC's latest assessment underscores that climate change is already a threat to human well-being and that there is "a rapidly closing window of opportunity to secure a liveable and sustainable future for all". **Limiting warming to safe levels requires global CO_2 emissions to reach net zero by mid-century, with deep reductions starting now**.[2] Every year of delay locks in higher warming and more severe, potentially irreversible impacts.

Climate-related disasters in the past decade have already inflicted trillions in losses – over $1.4 trillion globally from 2010–2019, roughly eight times the losses of the 1970s – and damages in 2023 alone exceeded $280 billion.[3] Each year of insufficient action thus brings compounding human and economic costs, reinforcing why immediate transition to renewable energy is imperative.

Ensuring universal energy access remains a core development imperative. According to UNDP, approximately 1.18 billion people globally live in energy poverty,[4] meaning they either lack electricity entirely or have such limited, unreliable, or unaffordable access that it does not meaningfully support their daily lives. In addition, over 2.3 billion people still rely on polluting fuels for cooking, contributing to a shocking 3.7 million premature deaths annually, with women and children most at risk.[5] The current state of affairs has serious implications both for health and gender equity. Expanding access is not only about household electricity – it also includes powering productive sectors like agriculture, manufacturing, and transport, which are critical for economic development, job creation, and resilience. The challenge is to achieve this expansion using clean, reliable energy systems, rather than repeating past models built on fossil fuels.

Encouragingly, recent analyses show that eradicating extreme poverty and energy poverty in low-income regions can be accomplished without significant growth in global emissions, if sustainable technologies are used.[6] For example, decentralised renewables (solar home systems, mini-grids, etc.) are increasingly cost-effective solutions to reach rural communities without adding substantially to carbon emissions[7] and there are significant lessons already learned in how best to implement such solutions for long term sustainability.[8]

While fossil-based systems have historically been associated with expanding energy access, they carry significant hidden costs – including health impacts including from air pollution, infrastructure lock-in, and exposure to volatile fuel markets. Moreover, even without accounting for these externalities, **the levelised cost of electricity (LCOE) for many renewables is now lower than fossil fuels in most regions.**[9] **However, the higher upfront capital investment required for renewable energy infrastructure remains a major barrier, particularly for least developed and low-income countries.**

2 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023*. Summary for Policymakers

3 Corrêa, B., Lins, C., Ferreira, G., & Bastos, L. (2024). *Rethinking Transitioning Away from Oil and Gas in a Just, Orderly, and Equitable Manner*. Catavento.

4 https://data.undp.org/blog/1-18-billion-around-the-world-in-energy-poverty.

5 https://www.iea.org/reports/a-vision-for-clean-cooking-access-for-all/executive-summary#:~:text=Today%2C%202.3%20 billion%20people%20worldwide,agricultural%20wastes%2C%20and%20animal%20dung.

6 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023*. Summary for Policymakers

7 IRENA, 2019: Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed

8 See for example: Stritzke, S., & Jain, P. (2021). The sustainability of decentralised renewable energy projects in developing countries: Learning lessons from Zambia. *Energies*, 14(13), 3757; Shi, Z., Liang, F., & Pezzuolo, A. (2024). Renewable energy communities in rural areas: A comprehensive overview of current development, challenges, and emerging trends. *Journal of Cleaner Production*, 144336.

9 https://documents1.worldbank.org/curated/en/125521593437517815/pdf/Demystifying-the-Costs-of-Electricity-Generation-Technologies.pdf

It is clear that the goals of climate mitigation and universal energy access need not conflict – they can be mutually reinforcing. Transitioning away from fossil fuels can simultaneously drive down emissions and improve energy security and affordability. And as stated earlier, a renewables-based energy transition can, in fact, help solve multiple problems at once: enhancing energy security, making energy more affordable, and tackling the climate crisis.[10] However, it is imperative that such a transition does not repeat the extractive practices that have caused significant harm in the past. Most particularly, the uncontrolled mining of critical minerals is intensifying geopolitical tensions, exacerbating human rights abuses and deepening inequalities.

During the recent global energy crisis, many governments realised that accelerating renewable energy deployment is not only good for the climate but also reduces vulnerability to volatile fossil fuel markets and import dependencies.[11]

2. What is a "Just and *Equitable* Energy Transition"?

According to the IPCC, it involves "a set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries or regions are left behind in the transition from a high-carbon to a low-carbon economy".[12] In practical terms, this means proactively managing the social and economic impacts of the energy transition so that communities dependent on fossil fuel industries, and vulnerable groups, are not harmed. Key principles include respect and dignity for affected workers and communities, fairness in energy access and use, social dialogue with all stakeholders, creation of decent jobs in new clean industries, social protection for those at risk, and protection of human rights. A just transition framework also stresses equity within and between countries: it is a shared responsibility of nations that have advanced furthest in cutting emissions and those still focused on pressing development needs.[13]

In sum, a just and equitable energy transition ensures climate solutions also advance social justice, so that climate action improves lives and does not exacerbate inequality. Its significance is both ethical and practical: neglecting justice can incur backlash against climate policies and slow down progress, whereas a fair transition builds public support and faster implementation.

"A just energy transition refers to a deliberate approach to moving from fossil fuels to a renewable energy system in a way that is fair, inclusive, and leaves no one behind."

10 IEA, 2022: *World Energy Outlook 2022*. IEA press release (Oct 27, 2022) – impact of energy crisis on clean energy transition and energy security

11 Browning, N, 2022: Energy crisis sparked by Ukraine war to speed up green transition -IEA. Reuters.

12 IPCC, 2023: *AR6 Synthesis Report*. Glossary definition of "Just Transitions"

13 IPCC, 2022: *AR6 Working Group III Report: Mitigation of Climate Change*. Chapter 17 (Accelerating the Transition) – discussion of energy justice and just transition

3. Public Finance: A Critical Enabler of the Transition

3.1 What is Public Finance?

In the context of a just and equitable energy transition, it refers to funding from public sector sources – government budgets, development banks, international financial institutions, and dedicated climate funds – directed toward climate and energy initiatives. This can include grants, low-interest loans, guarantees, and equity investments provided or backed by governments. Public finance often flows domestically (e.g. national funding for renewable infrastructure or worker retraining programs) and internationally (e.g. climate finance from developed to developing countries).[14]

Public finance has served as the backbone of the global renewable energy revolution, underpinning the dramatic transformation in energy generation witnessed since the turn of the millennium. In 2000, renewable energy accounted for only a modest share of global electricity generation, but by 2023, this share had surged, with countries such as Chile, China, and Germany making remarkable progress.[15] Figure 1 illustrates this shift, showing how nations have scaled up renewables in response to climate imperatives and technological advances. Central to this revolution has been the strategic reallocation of public funds – not only within countries but also from the Global North to the Global South – enabling infrastructure development, technology transfer, and capacity building.[16] Major domestic investments in emerging economies, often catalysed by public finance, have created enabling frameworks for private sector participation and accelerated the deployment of renewables.[17] While there is a clear obligation for wealthier nations to support this transition, evidence shows that many countries in the Global South have proactively mobilised public resources and implemented ambitious policies, as exemplified by the case studies in this paper. This reveals a more nuanced picture in which public finance is not only a catalyst for change but a foundational pillar of the global shift toward a new energy future.

Public finance is essential for a just and equitable transition, enabling investment in renewable energy and addressing socio-economic impacts. Achieving climate targets demands far greater investment than current levels. Governments, particularly in OECD countries, increasingly rely on renewable energy support policies and state investment banks to help close this gap.[18]

[Public finance—channeled through state investment banks (SIBs) and related mechanisms—is crucial for funding renewable energy and advancing the just and equitable energy transition.[19] [20] Many developed countries have green-focused public banks; for example, the U.S. has allocated USD 14 billion via the Inflation Reduction Act, and the European Investment Bank plans to raise EUR 45 billion.[21] However, studies show that policies alone are not enough—financial development and institutional strength are key to accelerating the shift to renewables.[22]]

14 The description here is informed by the following various sources: 1. Climate Policy Initiative. (2023). *Global landscape of climate finance 2023*; International Renewable Energy Agency (IRENA). (2023). *World energy transitions outlook 2023: 1.5°C pathway*; Organisation for Economic Co-operation and Development (OECD). (2022). *Climate finance provided and mobilised by developed countries in 2016–2020*; United Nations Framework Convention on Climate Change (UNFCCC) Standing Committee on Finance. (2020). *2020 Biennial Assessment and Overview of Climate Finance Flows*; World Bank. (2019). *Financing a resilient urban future: A policy brief on the role of public finance*.

15 International Renewable Energy Agency. (2023). *Renewable capacity statistics 2023*

16 Hafner, M., Tagliapietra, S., & de Strasser, L. (2020). The role of public finance in energy transitions: Lessons from international experience. *Energy Policy*, 140, 111426

17 China Briefing. (2024). *China's New Renewable Energy Plan: Key Insights for Businesses*

18 Waidelich, P., & Steffen, B. (2024). State investment banks and the financing of renewable energy projects. *Energy Economics*, 132, 107455. https://doi.org/10.1016/j.eneco.2024.107455

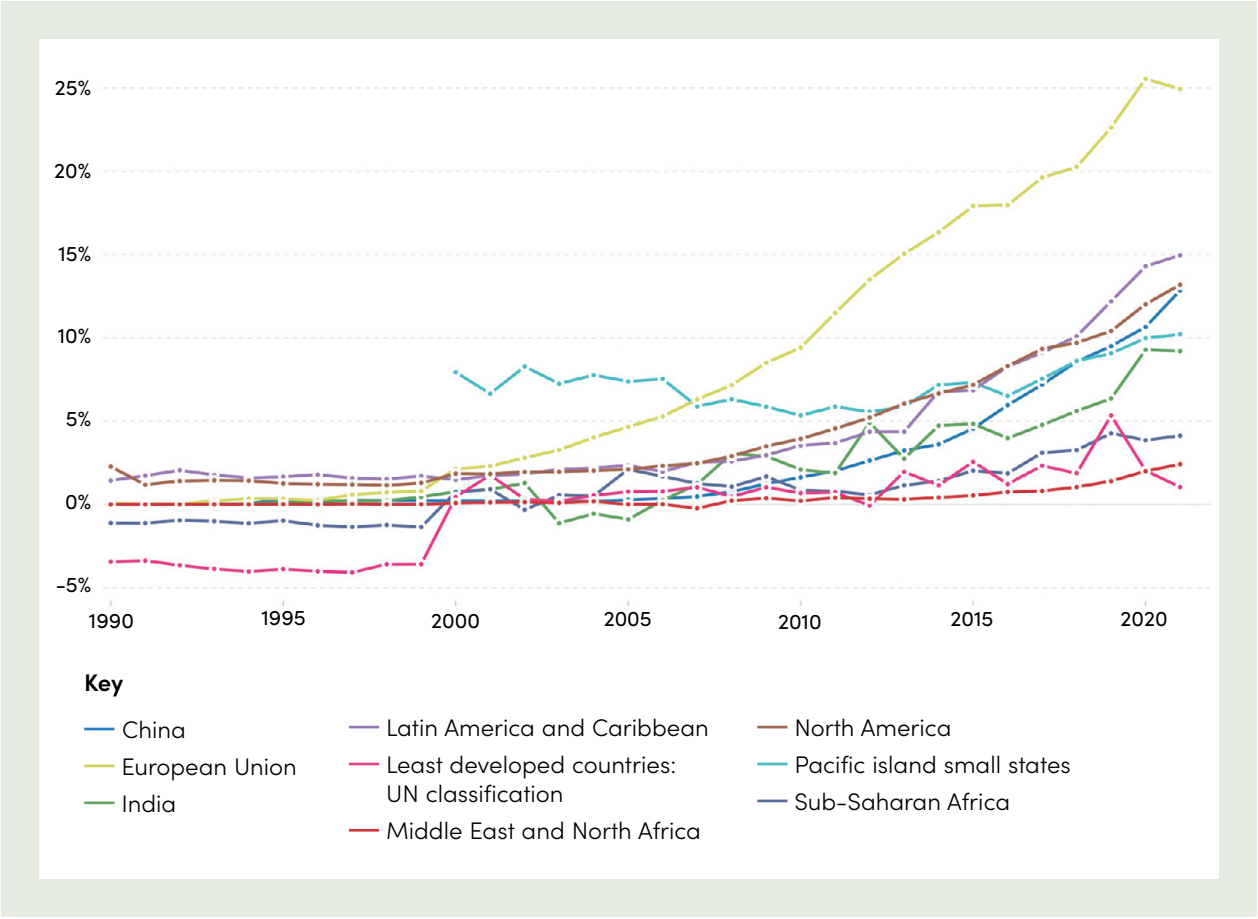
19 Briera, B., & Lefèvre, J. (2024). Public finance for the low-carbon transition: Integrating cost of capital into an Integrated Assessment Model. *Energy Policy*.

20 Waidelich, P., & Steffen, B. (2024). State investment banks and the financing of renewable energy projects. *Energy Economics*, 132, 107455. https://doi.org/10.1016/j.eneco.2024.107455

21 Waidelich, P., & Steffen, B. (2024). State investment banks and the financing of renewable energy projects. *Energy Economics*, 132, 107455. https://doi.org/10.1016/j.eneco.2024.107455

22 See: Briera, B., & Lefèvre, J. (2024). Public finance for the low-carbon transition: Integrating cost of capital into an Integrated Assessment Model. *Energy Policy*; Omri, A., & Ben Jabeur, S. (2024). *Climate policies and legislation for renewable energy transition: The roles of financial sector and political institutions.* Hal-04569311; Usman, O., Alola, A. A., & Ike, G. N. (2021). Modelling the effect of energy consumption on different environmental indicators in the United States: The role of financial development and renewable energy innovations. *Natural Resources Forum*, 45(4), 441–463; Omri, A., & Ben Jabeur, S. (2024). *Climate policies and legislation for renewable energy transition: The roles of financial sector and political institutions.* hal-04569311.

Figure 1: Electricity production from renewable sources, excluding hydroelectric (% of total)



Source: IEA. Licence: CC BY 4.0
https://data.worldbank.org/indicator/EG.ELC.RNWX.ZS?locations=CN-IN-ZG-XL-S2-ZJ-EU-ZQ-XU

For instance, investments in solar and wind, combined with efficiency, have been buffering consumers from high energy prices, and policymakers have responded with major initiatives (such as the Inflation Reduction Act in the U.S. and the REPowerEU plan in Europe) to speed up the clean transition – **if developed economies have been enhancing their renewable energy capacity through public finance, then it is an obligation for them to facilitate the same for developing economies, to meet their development aims.** In short, rapidly scaling up renewable energy is a win-win: it is the only pathway to stabilise the climate and to achieve energy access and security in a sustainable way.[23]

CASE STUDY ONE

Solar in India

Public finance plays a critical role in India's transition to a low-carbon economy, particularly in scaling up renewable energy projects such as solar. Since 2010, India has significantly reduced fossil fuel subsidies by 85%, shifting fiscal resources to support clean energy, electric vehicles, and electricity infrastructure through gradual reforms like removing subsidies on petrol and diesel and introducing coal production taxes. The Indian government has committed substantial funds toward this transition. For instance, India's National Action Plan on Climate Change (NAPCC) and subsequent efforts like the National Solar Mission aim to boost solar energy capacity to 500 GW by 2030. As part of this, India is targeting an investment of around $20 billion by 2025 in its renewable energy sector, which will contribute significantly to

23 IEA, 2022: *World Energy Outlook 2022*. IEA press release (Oct 27, 2022) – impact of energy crisis on clean energy transition and energy security

meeting its decarbonisation goal.[24] Public finance instruments, including grants, concessional loans, and government-backed guarantees, are central to de-risking investments and attracting both domestic and international capital. For example, the Production-Linked Incentive (PLI) scheme for solar manufacturing in India, with an allocation of ₹4,500 crore (approximately $600 million), is designed to encourage domestic production of solar components.[25]

However, despite these financial commitments, challenges related to equity persist. The transition to renewable energy, especially through utility-scale solar parks, comes at a significant cost, not just financially, but socially. For instance, large-scale solar parks such as the Bhadla Solar Park, which covers 5,700 hectares and has an installed capacity of 2,245 MW, represent an investment of approximately $1 billion.[26] While these parks are key to achieving renewable energy targets, they have also led to land dispossession for marginalised communities, including low-caste and indigenous populations, who are often left without adequate compensation or alternative livelihoods.

The financial mechanisms supporting these projects, such as government-backed loans and international climate finance, are not always effectively targeting the needs of those who are most vulnerable. For example, while India aims to create 1 million new clean energy jobs by 2030, the gap in retraining and local employment opportunities for displaced workers from coal sectors remains significant.[27] The transition is not only about switching to green energy but ensuring that the benefits of this shift are distributed fairly. Current financial allocations are insufficient in addressing the needs of those displaced from coal-dependent industries, and the absence of local hiring or training programs in renewable energy projects exacerbates inequality.

Moreover, India's coal economy remains deeply embedded in the social, economic, and political fabric of certain regions, making the transition complex and costly. Coal still accounts for 65% of India's total energy generation, and the ongoing construction of new coal power plants means the transition to renewables is not immediate. The Indian government has allocated approximately ₹13,000 crore (about $1.75 billion) under its Coal Cess Fund, which is meant to support cleaner energy transitions, but the scale of investment required to fully replace coal with renewables remains far higher.[28]

In this context, Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) is a crucial framework. As India continues to navigate the just transition, it requires substantial international support, especially from developed nations, who are historically responsible for emissions. The International Solar Alliance (ISA), a coalition led by India, has set an ambitious goal to mobilise $1 trillion in financing to scale solar energy globally, but the burden of financing this transition should not fall disproportionately on India alone, which still faces significant social and economic challenges related to energy access.[29]

Thus, while public finance instruments such as grants, concessional loans, and international climate finance are vital to scaling renewable energy in India, these mechanisms must be better targeted to address the social and economic costs of the transition. The CBDR-RC principle is critical in ensuring that the transition is not only environmentally but also socially just, with sufficient financial support to mitigate the risks faced by vulnerable communities, displaced workers, and economically dependent regions.[30] [31]

24 Chandra, R., Pai, S., Nayak, S., & Devagudi, S. H. (2025). India's Coal Conundrum: Decarbonization Amidst A Developmental Legacy. WIREs Climate Change, 16(1), e928

25 Shokrgozar, S., & Girard, B. (2024). The companies are powerful, people are weak: India's solar energy ambitions and the legitimation of dispossession in Rajasthan. *Journal of Political Ecology*, 31, 49-75

26 Shokrgozar, S., & Girard, B. (2024). The companies are powerful, people are weak: India's solar energy ambitions and the legitimation of dispossession in Rajasthan. *Journal of Political Ecology*, 31, 49-75

27 Chandra, R., Pai, S., Nayak, S., & Devagudi, S. H. (2025). India's Coal Conundrum: Decarbonization Amidst A Developmental Legacy. WIREs Climate Change, 16(1), e928.

28 Chandra, R., Pai, S., Nayak, S., & Devagudi, S. H. (2025). India's Coal Conundrum: Decarbonization Amidst A Developmental Legacy. WIREs Climate Change, 16(1), e928.

29 Shokrgozar, S., & Girard, B. (2024). The companies are powerful, people are weak: India's solar energy ambitions and the legitimation of dispossession in Rajasthan. *Journal of Political Ecology*, 31, 49-75

30 Chandra, R., Pai, S., Nayak, S., & Devagudi, S. H. (2025). India's Coal Conundrum: Decarbonization Amidst A Developmental Legacy. *WIREs Climate Change*, 16(1), e928.

31 Stock, R., & Sovacool, B. K. (2024). Blinded by sunspots: Revealing the multidimensional and intersectional inequities of solar energy in India. *Global Environmental Change*, 84, 102796.

Solar farm in rural India. Credit: iStock, Pradeep Gaur

3.2 Why 'International' Public Finance Matters

International public finance refers to financial resources provided by public entities, often operating across borders, to support various objectives. It is widely recognized as a critical enabler for a just energy transition, especially in developing regions. It plays a pivotal role in closing the investment gap for climate solutions and ensuring an equitable transition.[32] [Developed countries built their wealth on fossil-fueled growth. Under the principle of common but differentiated responsibilities, they are obliged to provide international public finance to support those most affected by climate change in transitioning without bearing unfair costs. Just energy transition finance is a specific subset of international public finance—but both are closely linked and reinforce one another.] Such finance matters for several reasons:

- Equity and Access
- Fulfilling International Commitments
- Signal and Leverage
- De-risking and Accelerating Innovation

3.2.1 Equity and Access

Public finance can and must be directed to areas and populations that purely profit-driven investments might neglect. It can reduce inequities in access to finance by providing resources on better terms (e.g. grants or low-interest loans) to vulnerable communities or poorer countries.[33] This is crucial for energy access – market-based loans often bypass remote or low-income communities due to lower profitability. Public funding can fill this gap, ensuring the benefits of the transition (like electricity access or clean cooking facilities) reach the poorest. Indeed, the IPCC finds that **scaled-up public grants** for clean energy in regions like Sub-Saharan Africa would be highly cost-effective, yielding large social benefits in terms of energy access.[34] Simply put, without sufficient public finance, many developing countries cannot afford the upfront costs of renewables or resilience measures that would both cut emissions and lift people out of energy poverty.[35] Public finance is often "what makes climate action possible" in communities where commercial financing is absent.[36]

32 IPCC, 2022: *AR6 Working Group III Report: Mitigation of Climate Change* – Chapter 15: Investment and Finance
33 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023.* Summary for Policymakers
34 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023.* Summary for Policymakers
35 Oxfam, 2023: Climate Finance Short-Changed – 2024 Update. (UNFCCC submission) – climate finance obligations and delivery ($100 bn goal)
36 Oxfam, 2023: *Climate Finance Short-Changed – 2024 Update. (UNFCCC submission) – climate finance obligations and delivery ($100 bn goal)*

3.2.2 Fulfilling International Commitments

There is also a justice dimension at the global scale. Wealthy nations have acknowledged their obligation to support developing countries by mobilizing climate finance, based on the principle of common but differentiated responsibilities.[37] Meeting these commitments through robust public finance is essential for maintaining trust between nations and for empowering developing countries to pursue renewable energy. Conversely, shortfalls in promised finance undermine cooperation. (Notably, developed countries pledged to mobilise **$100 billion per year** in climate finance by 2020, but provided only about $83–90 billion in 2020–2021, missing the target.[38])

Consistent, enhanced public finance from developed countries is critical to help developing nations transition their energy systems equitably while adapting to climate impacts – an investment that benefits the entire planet. The New Collective Quantified Goal (NCQG), set to reach at least $300 billion annually by 2035, whilst largely seen as a failure for climate justice,[39] must now be an opportunity to reorient global climate finance toward justice and equity. Unlike the previous $100 billion commitment—which lacked enforceable mechanisms and failed to prioritise grants—the NCQG must be operationalised through predictable, grant-based public finance that meets the needs of developing countries without worsening debt burdens. For this to succeed, the NCQG must be embedded within broader reforms to the international financial architecture, including the mandates of multilateral development banks (MDBs), and enabling comprehensive debt relief or cancellation for climate-vulnerable countries. Small island states and other frontline communities have been clear: public climate finance must not replicate colonial debt cycles. Instead, it must reflect the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) by delivering finance that is accessible, unconditional, and aligned with nationally determined priorities. **This means going beyond co-financing metrics and return-on-investment logics to explicitly address historical responsibility and capacity asymmetries in global finance. Without such alignment, even the most ambitious climate finance pledges will fall short of delivering a truly just and equitable energy transition.**

3.2.3 Signal and Leverage

Public finance sends strong signals of government commitment and policy priority. By investing public funds in renewable energy, governments can reduce uncertainty and perceived risks, which encourages private investors to follow. For example, an appropriately designed public guarantee or concessional loan for a solar farm can attract commercial investors who might otherwise shy away from a first-of-its-kind project. In this way, public finance "crowds in" large sums of private money that are essential to scale up renewable energy.[40] However this does not occur in a vacuum.

3.2.4 De-risking and Accelerating Innovation

A key contribution of public finance to the renewable energy transition is the provision of affordable capital. Public lenders can offer finance at a lower cost than the market, which reduces the average cost of capital. This capital provision is crucial because renewable energy projects typically require substantial upfront investment.[41] Public finance tools are also essential in de-risking renewable energy investment, decreasing exposure to financial risks, thereby facilitating the scaling up of projects.[42] A strong financial sector, supported by sufficient investment and funding, is necessary to accelerate the move towards sustainable energy sources, providing both access to capital and methods for attracting private investment.[43]

37 Oxfam, 2023: *Climate Finance Short-Changed – 2024 Update. (UNFCCC submission) – climate finance obligations and delivery ($100 bn goal)*

38 Oxfam, 2023: *Climate Finance Short-Changed – 2024 Update. (UNFCCC submission) – climate finance obligations and delivery ($100 bn goal)*

39 https://porelclima.org/images/2024/AOSIS_Reation_to_COP29_Draft_NCQG_Text.pdf; https://actionaid.org/news/2024/cop29-final-ncqg-text-text-not-worth-paper-its-written-says-actionaid#:~:text=Reacting%20to%20the%20final%20NCQG,fighting%20for%20is%20in%20here.

40 Oil Change International, 2022: *Ensuring Public Finance Accelerates a Just Energy Transition* – briefing on role of public finance

41 Briera, B., & Lefèvre, J. (2024). Public finance for the low-carbon transition: Integrating cost of capital into an Integrated Assessment Model. *Energy Policy*.

42 Onabowale, O. (2025). Energy policy and sustainable finance: Navigating the future of renewable energy and energy markets. *World Journal of Advanced Research and Reviews*, 25(01), 2235–2252. https://doi.org/10.30574/wjarr.2025.25.1.0319

43 Chen, J. M., Umair, M., & Hu, J. (2024). The influence of green finance and capital structure on renewable energy development: Empirical evidence from developing countries. *Heliyon*, 10(20), e33879.

By reducing uncertainty and transition risk for private actors, well-aligned public finance—along with supportive policy—accelerates the rollout of new solutions. This is especially important because many clean technologies or projects face initial barriers, such as high capital costs, unproven markets, or infrastructure and research needs that deter early private investment. Public finance can absorb these risks or fund innovation in ways the private sector typically avoids.[44] For instance, public-sector loans and policy support helped kick-start the solar and wind industries, leading to dramatic cost declines over the last decade. Now, **as countries aim to transition entire energy systems, public finance is again crucial to build enabling infrastructure (like grids and storage), retrain workers, facilitate research, and ensure the transition's benefits (jobs, cleaner air, reliable power) are widely shared.**

CASE STUDY TWO

Public Finance Mechanisms in China's Just Transition for Coal Regions[45]

China's coal-dependent regions, such as Wuhai (Inner Mongolia) and Tongchuan (Shaanxi), have historically relied on coal mining for economic growth, employment, and tax revenue. However, resource depletion, environmental degradation, and national decarbonisation goals necessitated a transition away from coal. This shift posed significant fiscal challenges:

- Coal-related industries contributed 29% of GDP and 46% of tax revenue in provinces like Shanxi (He et al., 2020).
- Over 300,000 coal jobs were lost annually nationwide, with 2.6 million still employed in coal mining as of 2023 (Yang et al., 2024).

Public Finance Strategies for a Just Transition

China's central and local governments deployed targeted fiscal instruments to address these challenges. From 2008 to 2022, the central government allocated over 23 billion RMB ($3.5 billion) annually to 69 resource-depletion cities, including Wuhai and Tongchuan. These funds supported social security, environmental rehabilitation, and economic diversification (Yang et al., 2024). Special funds covered basic living expenses, healthcare, and education for displaced workers. For example, state-owned enterprises in Wuhai provided retraining programs tailored to workers' age and skills, reducing social unrest (Yang et al., 2024).

Local governments offered tax breaks to attract non-coal industries. In Wuhai, chemical manufacturing (e.g. biodegradable materials) grew to 10% of industrial GDP by 2020, surpassing coal employment (Yang et al., 2024). Provincial governments refinanced coal-related debt into green bonds, redirecting capital to renewable energy projects (He et al., 2020).

In terms of green investment vehicles, Tongchuan leveraged PPPs to fund solar and wind projects, with public funds absorbing early-stage risks. By 2020, strategic emerging industries accounted for 13.5% of its industrial GDP (Yang et al., 2024). In addition, national policies required coal firms to allocate a percentage of profits to transition funds, ensuring long-term financial support for affected communities (He et al., 2020).

Wuhai's chemical sector now employs more workers than coal mining, while Tongchuan reduced coal's GDP share by 40% between 2010 and 2020 (Yang et al., 2024). However there were fiscal strains. Local governments faced budget shortfalls due to declining coal revenues, necessitating increased central transfers (He et al., 2020).

China's approach highlights three replicable public finance strategies:

1. using public funds to de-risk green projects for private investors
2. allowing local governments to tailor incentives to regional needs through fiscal decentralisation
3. the critical importance of social safety nets with direct fiscal transfers to mitigate unemployment shocks.

China's experience demonstrates how strategic public finance mechanisms - targeted transfers, tax incentives, and green investment vehicles – can facilitate a just transition in coal regions. While fiscal dependencies remain a hurdle, these tools have enabled Wuhai and Tongchuan to diversify economies, protect workers, and align with global decarbonisation goals.

44 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023*. Summary for Policymakers

45 He, G., Lin, J., Zhang, Y., Zhang, W., Larangeira, G., Zhang, C., ... & Yang, F. (2020). Enabling a rapid and just transition away from coal in China. *One Earth*, 3(2), 187–194 & Yang, Y., Dong, W., & Hui, J. (2024). *A just transition for coal regions: Learning from two coal cities in Western China.* Belfer Center for Science and International Affairs.

BOX ONE

Conditionalities

Policy conditionalities attached to loans from Multilateral Development Banks (MDBs) often create tensions with national sovereignty. These conditions, which can include austerity measures, privatization, and deregulation, may undermine long-term development goals by forcing countries to adopt economic reforms that do not align with their climate and social needs. For example, fiscal consolidation measures, often required by the IMF and MDBs, can lead to cuts in social services, exacerbating poverty and inequality, while privatization of essential services like electricity and water can increase costs for vulnerable populations, as seen in the World Bank's Maximizing Finance for Development (MFD) approach. Conditions that prioritize private capital over public investment or push for trade liberalization can expose small economies to additional risks, especially in the face of climate-induced shocks. Developing countries, especially SIDS have raised concerns that such policies compromise their ability to make context-specific decisions for sustainable development, as they can limit public debate and reduce the legitimacy of climate finance initiatives. For instance, austerity measures, including cutting subsidies for food or fuel, have directly conflicted with the need for resilience-building in countries facing climate impacts. To ensure that climate finance supports, rather than constraints, development goals, MDBs need to reform their conditionality practices, ensuring that reforms are aligned with national priorities and foster climate resilience without exacerbating vulnerability or inequality. This requires a shift from a one-size-fits-all approach to a more flexible, context-driven framework that prioritizes developing country sovereignty and development needs.[37]

Sun setting behind wind energy farm on Icarai de Amontada beach - July, 2024

Credit: iStock, Cacio Murilo de Vasconcelos

46 Sharma S. (2025). *Multilateral Development Banks, Climate Finance, and Small Island Developing States: Risks, Challenges, and the Need for Reform.* PICAN Discussion Paper

CASE STUDY THREE

National Public Finance: The Role of BNDES and Green Innovation in Brazil

The Brazilian Development Bank (BNDES) has historically been the cornerstone of green finance in Brazil, underwriting large-scale renewable energy projects and supporting energy efficiency.[47] However, fiscal constraints and economic volatility have limited its ability to finance the full spectrum of transition needs, particularly those involving social inclusion and just transition priorities.[48]

To address these issues, Brazil pioneered the Green Receivables Fund (Green FIDC) - a securitisation vehicle that pools receivables from green projects and issues tradable securities. This instrument allows public finance to absorb early-stage risks, making projects more attractive to private investors and enabling the recycling of public capital.[49] Green FIDC has mobilised over $114 million in private capital, with ambitions to scale to $1 billion.[50]

National public finance has increasingly targeted social equity by supporting distributed solar in low-income communities, financing job retraining for fossil fuel workers, and prioritising projects in historically marginalised regions.[51] However, fiscal space remains limited, and without additional resources, the pace and inclusivity of the transition risks being insufficient.

International public finance – via MDBs, climate funds, and bilateral cooperation – has been instrumental in de-risking investments, providing concessional capital, and supporting technical assistance. For example, the Green FIDC structure has benefited from international climate funds that provide first-loss capital, making the instrument more attractive to domestic institutional investors.[52]

Brazil's experience demonstrates that a just energy transition is most effective when national public finance is complemented and strengthened by international cooperation. Innovative instruments like the Green FIDC, supported by both domestic and international capital, enable Brazil to mobilise resources at scale while embedding equity into the transition process. The Brazilian case offers a valuable model for other emerging economies seeking to balance climate ambition with social justice.

In summary, public finance is the linchpin that can unlock the renewable energy transition at the scale and speed required. It fills financing gaps, especially in underserved regions and high-risk areas, and by doing so it enables both rapid emissions reductions and expanded energy access. However, public finance must be shifted away from fossil fuels and toward clean solutions: currently, too much public money is still spent on carbon-intensive infrastructure.[53] Aligning all public finance with climate goals – and scaling it up – will be a decisive factor in driving a transition, which is successful and just.

47 Climate Finance Lab. (2022). *Green Receivables Fund (Green FIDC)*
48 IIGF. (2022). *Green Finance in Brazil*
49 Climate Finance Lab. (2022). *Green Receivables Fund (Green FIDC)*
50 Climate Finance Lab. (2024). *Green FIDC: Private Investment Mobilization*
51 UNEP. (2021). *Green Finance in Developing Countries: Needs, Concerns and Innovations.*
52 Climate Finance Lab. (2022). *Green Receivables Fund (Green FIDC)*
53 Oil Change International, 2022: *Ensuring Public Finance Accelerates a Just Energy Transition – briefing on role of public finance*

4. Public Finance is available but going to wrong places and not for Just Energy Transition

Developing countries face a critical resource shortfall in financing their climate action and energy access plans (NDCs), with trillions of dollars needed, much of which remains unfunded. Despite this urgent need, global public finance is being directed elsewhere, leaving measures to achieve the renewable energy transition and just transition significantly underfunded. The world is far from on track to provide the necessary resources to limit warming to 1.5°C and achieve universal energy access.

In 2022, governments allocated a staggering $7 trillion in fossil fuel subsidies (roughly 7% of global GDP),[54] while military spending topped $2.4 trillion in 2023.[55] Meanwhile, during the COVID-19 pandemic, G20 countries mobilised at least $7.6 trillion (11% of global GDP) in emergency support.[56] Despite these rapid financial responses, the climate crisis requires a 590% increase in annual climate investments by 2030 to meet agreed targets.[57]

The commitment of wealthy nations to providing climate finance has been a central pillar of climate diplomacy, yet delivery on these promises has been inconsistent. The $100 billion annual target, pledged for 2020, was missed, with only ~$83 billion provided in that year. These delays hinder the ability of developing countries to implement their GHG emission reduction plans and achieve their climate goals.

Moreover, much of the climate finance provided by wealthy countries comes in the form of loans – nearly 70% in 2022 – often at market rates, which further burden developing nations with debt.[58] This not only penalises them for climate impacts they did little to cause but also forces them to repay loans meant for transition efforts. **The contrast is stark: money is mobilised swiftly for other crises, such as military conflicts and the pandemic, but the urgency for climate action is sorely lacking.**[59]

In addition to insufficient international support, many developing countries are already grappling with debt crises, consuming critical resources that could be used for energy transitions and climate adaptation. These countries collectively owe approximately $29 trillion in external debt, with 93% of the poorest countries facing high debt distress. This means that these countries are spending twice as much on debt payments as they receive in climate finance, further exacerbating their vulnerability.[60]

Finally, the failure of polluting corporations and the ultra-wealthy to pay fair levels of tax deprives countries, particularly in the Global South, of crucial revenues needed to finance climate action. If the UN Framework Convention on International Tax Cooperation establishes binding global tax rules, it could ensure equitable taxation of multinational corporations and the super-rich, generating substantial additional revenues for governments. Tackling illicit financial flows and implementing progressive taxation could help developing countries mobilise the financial resources they desperately need, while wealthy nations would be held accountable for fulfilling their climate finance commitments.[61]

54 https://www.imf.org/en/Blogs/Articles/2023/08/24/fossil-fuel-subsidies-surged-to-record-7-trillion#:~:text=Fossil,economic%20recovery%20from%20the%20pandemic

55 https://www.sipri.org/media/press-release/2024/global-military-spending-surges-amid-war-rising-tensions-and-insecurity#:~:text=,org

56 https://www.csis.org/analysis/breaking-down-g20-covid-19-fiscal-response-june-2020-update#:~:text=,6%20trillion

57 https://www.climateworks.org/wp-content/uploads/2022/11/iGST_Access-to-Climate-Finance_Nov2022.pdf#:~:text=Policy%20Initiative%E2%80%99s%20Global%20Landscape%20of,2021

58 https://www.oxfam.org/en/press-releases/rich-countries-overstating-true-value-climate-finance-88-billion-says-oxfam#:~:text=However%2C%20while%20nearly%20%2492%20billion,Global%20South%20countries%E2%80%99%20debt%20levels

59 https://www.climateworks.org/wp-content/uploads/2022/11/iGST_Access-to-Climate-Finance_Nov2022.pdf#:~:text=is%20not%20the%20availability%20of,mobilise%20climate%20finance%20in%20developing

60 https://www.globalplatforms.org/read/cop29-moment-global-action-climate-change#:~:text=Developing%20countries%20face%20a%20punishing,Cancelling%20or%20restructuring

61 https://www.eurodad.org/when_tax_justice_meets_climate_justice_how_a_new_global_tax_deal_can_address_the_climate_crises

BOX TWO

Just Energy Transition Partnership (JETP)

New models of partnership are emerging: for example, the **Just Energy Transition Partnership (JETP)** model, launched with South Africa in 2021 and since extended to Indonesia, Vietnam, and others, pools international public finance to help specific countries transition from coal. However these have been fraught with issues due to poor design. South Africa secured an $8.5 billion initial pledge from a coalition of developed countries to support its coal phase-out and clean energy investment plan (recently increased to $11.6 billion). However, this is still only a fraction of the ~$98 billion South Africa estimated it will need for a fully just transition. The balance and terms of finance are crucial: South Africa had expected a larger share in grants, and the paucity of grant funding initially led to friction and distrust between South Africa and its partner countries. Similarly, other nations like India have been cautious, partly due to concerns about incurring debt for climate action.[64] These episodes underscore that developed countries **must calibrate their support to be fair and accessible** – providing sufficient public finance, technical support, and policy flexibility – if they want developing countries to embrace ambitious transitions. In essence, climate finance is not just a monetary transfer; it is a tool of diplomacy and justice. When used boldly and fairly, it can strengthen global cooperation (a "critical enabler" for ambitious mitigation[65]); when it falls short, it can become a source of tension, impeding progress. Ensuring predictable, adequate, and equitable climate finance flows is therefore a top geopolitical priority to keep the transition on track.

BOX THREE

The Climate Damages Tax – Making Polluters Pay for the Just Transition

One practical and principled source of revenue for public finance is the Climate Damages Tax (CDT)[66] – a proposal to levy a fee on fossil fuel extraction based on the embedded carbon in coal, oil, and gas. The CDT applies the "polluter pays" principle by requiring fossil fuel producers to contribute directly to the costs of climate impacts their products cause. The CDT is designed to:

- Start at US$5 per tonne CO_2e, increasing annually by US$5 per tonne.
- Raise up to $900 billion by 2030 from OECD countries alone – with revenues split between financial support for the Fund for Responding for Loss & Damage and climate action to pay for adaptation and mitigation measures, particularly in developing countries.

It is one of the leading proposals under consideration by the Global Solidarity Levies Task Force led by France, Kenya and Barbados, alongside levies on activities such as financial transactions, specifically on the purchase of shares, and aviation, particularly on premium flights and private jets.

62 https://www.eurodad.org/when_tax_justice_meets_climate_justice_how_a_new_global_tax_deal_can_address_the_climate_crises
63 IPCC, 2022: *AR6 Working Group III Report: Mitigation of Climate Change*. Chapter 17 (Accelerating the Transition)
64 Sharma-Khushal, S. & Hillman, D. (2024). *The Climate Damages Tax: A Guide to What It Is and How It Works*. Stamp Out Poverty.

5. System Change, Equity and Justice

Why do we need systemic change? Our current model of growth and energy access remains rooted in outdated, fossil-centric assumptions that treat coal, oil, and gas as the default path to development—especially for underserved regions of the majority world. This thinking stems from a legacy of industrialisation in the developed countries, where fossil fuels powered economic expansion and are still viewed as symbols of modernity and progress. Global financing systems and energy modelling often reinforce this bias by labelling fossil energy as cheaper and more reliable, while failing to account for the environmental, health, and long-term climate costs. Development institutions frequently push centralised, large-scale fossil projects as "bankable," while sidelining decentralised, renewable, community-driven solutions as too small or risky—even though they are more sustainable, faster to deploy, and better suited to local needs. This is compounded by fossil fuel industry lobbying and a colonial legacy in energy infrastructure, which was designed to serve extractive industries and elites rather than deliver equitable access. **We are in a dangerous era of denial, where the geopolitics of the day, chasing energy dominance and aligning with the fossil fuel industry, contradicts the overwhelming scientific consensus on climate change.**

Developed countries play a significant role in shaping the narrative around fossil fuels in developing countries, both through direct policy influence and the broader economic and political structures in which global energy markets operate. **But the narrative that the poor need fossil fuels to develop is not only scientifically outdated, but it also undermines the potential of renewable energy to drive sustainable, inclusive, and resilient development. Instead, science and technology show that renewables are the key to a more equitable and environmentally sustainable future, making them the best option for addressing both energy access and climate goals in developing countries.**

Developing countries need just, and locally appropriate renewable energy systems — with extensive participation of communities that adheres to human rights, free, informed and prior consent, as well as the integrity of ecosystems — as the cornerstone of true progress. There are undeniable risks associated with large-scale renewable energy deployment if it proceeds without safeguards to prevent the unchecked extraction of critical minerals. **Simply replacing one form of harmful extraction with another does nothing to address the continued breach of planetary boundaries.** Ensuring a just and sustainable transition requires strong regulatory frameworks, circular economy strategies, and community-centered approaches that avoid replicating the exploitative patterns of the fossil fuel era.

Achieving this vision means tripling renewable capacity. However, it must not come at the expense of people or ecosystems. This requires a shift toward circular economy practices, improved material efficiency, and technological innovation. According to IRENA,[65] strategies such as recycling rare earth metals from end-of-life products, substituting critical materials with abundant alternatives (e.g., sodium-ion instead of lithium-ion batteries), and designing modular, upgradable systems can drastically reduce raw material demand. Sovacool et al.[66] emphasise that demand-side management, decentralised systems, and better planning can limit unnecessary infrastructure build-out. Moreover, **aligning renewable deployment with Indigenous rights and environmental safeguards is essential to prevent new green extractivism**.[67] This integrated approach ensures that scaling up renewables does not replicate the harms of fossil fuel dependence. It is important to note that many States are clear that a precautionary approach is required especially in deep-sea mining with a growing number of States and companies seeking a moratorium. Science is telling us that deepsea mining will likely accelerate losses of biodiversity and disruption to ecosystem functions provided by the Ocean including climate regulation.[68]

65 IRENA (2023). *Geopolitics Of The Energy Transition Critical Materials*

66 Sovacool, B. K. (2021). Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation. *Energy Research & Social Science*, 73, 101916.

67 Owen, J. R., Kemp, D., Lechner, A. M., Harris, J., Zhang, R., & Lèbre, É. (2023). Energy transition minerals and their intersection with land-connected peoples. *Nature Sustainability*, 6(2), 203-211.

68 Feicthner, I., and Ginsky, H. (2024). The struggle at the International Seabed Authority over deep sea mineral resources. npj *Ocean Sustainability*, 3(1), 63.

Encouragingly, recent analyses show that eradicating extreme poverty and energy poverty in low-income regions can be accomplished without significant growth in global emissions, if sustainable technologies are used.[69] For example, decentralized renewables (solar home systems, mini-grids, etc.) are increasingly cost-effective solutions to reach rural communities.

It is economically rational for one country to finance just and equitable energy transitions in another when the avoided damage exceeds the cost of the intervention. For instance, funding the replacement of a coal plant with renewables in a developing country can prevent warming-related damages that would otherwise affect all countries; if the value of that prevention exceeds the investment, it becomes a win-win. Recent analyses indicate that phasing out coal globally and replacing it with renewables could generate net global benefits in the tens of trillions of dollars, once avoided climate and health costs are included. It is thus not merely altruism but sound economics for high-income countries to support climate action beyond their own borders—because the benefits, including to themselves, far outweigh the costs.[70]

Public finance is crucial not just to de-risk projects for private investors, but to support systemic, inclusive energy transitions. It should fund climate-compatible national development, renewable energy access, and decarbonized infrastructure, while also protecting vulnerable communities through social protection schemes. Rather than focusing solely on "bankable" projects, public finance should drive broader systemic change toward just and equitable transitions, emphasizing equity, development effectiveness, and restorative justice.

Moreover, public finance, coupled with integrated policies, is key to ensuring a just transition. Supporting social equity—through initiatives like energy access programs, worker retraining, and regional development—is vital for making the renewable energy transition environmentally sustainable and socially inclusive. By aligning finance with policies that prioritize both environmental sustainability and social inclusion, stakeholders can achieve a more equitable transition.[71] [72]

69 IPCC, 2023: *AR6 Synthesis Report: Climate Change 2023*. Summary for Policymakers

70 CEPR, 2022: COP27: Climate finance for developing countries is not just equitable, it is self-interest

71 Onabowale, O. (2025). Energy policy and sustainable finance: Navigating the future of renewable energy and energy markets. *World Journal of Advanced Research and Reviews*, 25(01), 2235–2252. https://doi.org/10.30574/wjarr.2025.25.1.0319

72 Onabowale, O. (2025). Energy policy and sustainable finance: Navigating the future of renewable energy and energy markets. *World Journal of Advanced Research and Reviews*, 25(01), 2235–2252. https://doi.org/10.30574/wjarr.2025.25.1.0319

BOX FOUR

Why public services?

Ensuring that public finance supports spending on quality public services is an essential part of a just transition. For example, investment in equitable access to public health and public education is crucial if all people, including the most excluded and marginalised, are to participate in and benefit from the transition, building their own resilience and ability to adapt to rapidly changing environments and livelihoods. It is vitally important to value comprehensive public education and health systems as part of this socio-economic transformation. The priority must be to build societies and economies that care for both people and the planet - and this means working to reinstate a social contract between states and people, with obligations on international institutions and finance to reinforce this. A massive scale up in investment in public care infrastructure and jobs is needed, not just in health and education, but also in child and elder care, food, agricultural extension, public transport, sanitation, gender-based violence services, housing, and safe and green public spaces. Transforming investments in public services like these must be seen as an integral part of a just transition.

Global efforts toward a just energy transition are unfolding in a complex geopolitical landscape. Issues of finance, trade, and equity are interlinked, and how they are managed will influence both the pace of climate action and the fairness of outcomes across nations. Equity has long been enshrined in the climate regime (via the principle of common but differentiated responsibilities and respective capabilities), operationalising it in policy is the hard part.

Ultimately, embracing equity is the only workable path to global climate success. An inequitable transition – where rich countries decarbonize and poor countries are left with little support, conditional public finance and a heavy focus on private investments, as well as new trade barriers – would compound development and climate failures and likely fail to bring down global emissions sufficiently, and rapidly. A just and equitable transition, by contrast, would see all countries gain: developing nations leapfrog to clean energy and improve energy access with public finance support, and developed nations secure a safer climate and new economic opportunities, as discussed. This "high-cooperation, high-equity" scenario is challenging, but it is still achievable. It will require good-faith negotiations, creative public finance mechanisms, and recognition that **solidarity and enlightened self-interest are two sides of the same coin** in the context of climate change.

Vanuatu solar and wind energy – renewable energy against global warming
Credit: Alamy Stock Photo, Dancing Man

CASE STUDY FOUR

Vanuatu's Enhanced Ambition in its NDC 3.0:[73] Towards a Fossil Fuel Free Pacific

Vanuatu, a Small Island Developing State (SIDS) in the Pacific, is highly vulnerable to climate change and energy insecurity. In the past decade, successive, relentless, extreme and slow onset weather events have devastated Vanuatu, leaving her Government and people in a constant cycle of recovery.[74] For instance, the Post Disaster Needs Assessment (PDNA) for Vanuatu estimated that the total cost of damages and losses from the twin Category 4 Tropical Cyclones Judy and Kevin in 2023 amounted to USD 433 million or approximately 45% of their GDP. The recovery needs were projected to be USD 773 million equivalent to 81.4% of GDP.[75] In its Revised and Enhanced 1st Nationally Determined Contribution (NDC) 2021–2030, Vanuatu commits to transitioning its electricity sector to nearly 100% renewable energy by 2030, conditional on international (public) financial and technical support.

Vanuatu's NDC 3.0 sets a new global standard for ambitious, rights-based climate action, aiming for a Fossil Fuel Free Pacific and positioning the region as the world's first to equitably phase out fossil fuel production and use. This transformative vision is anchored in a rapid, economy-wide decarbonization pathway that builds on Vanuatu's net-negative emissions profile, prioritizing a shift to a circular, climate-resilient economy where no one is left behind. The NDC's total costed needs for 2025–2035 are estimated at USD 2.8 billion, covering mitigation (~USD 503 million), adaptation (~USD 1.1 billion), and loss and damage (~USD 1.1 billion), with nearly all targets explicitly conditional on scaled international financial, technical, and capacity-building support as per the Paris Agreement.

73 https://docc.gov.vu/images/publications/Vanuatu%20NDC%202025-2035.pdf
74 International Court Of Justice Obligations Of States In Respect Of Climate Change Written statement submitted by the Republic of Vanuatu (2024)
75 https://www.ilo.org/publications/vanuatu-tropical-cyclones-judy-and-kevin-2023-post-disaster-needs

Sectoral ambition is high. Vanuatu targets close to 100% renewable electricity by 2035, universal access, and zero electricity emissions, while rejecting new forms of extractivism such as deep seabed mining. Its NDC charts a transition from fossil fuels to solar, wind, hydro, coconut oil, biogas, and biomass, alongside major advances in energy efficiency, electrified and biodiesel-powered transport, and comprehensive actions across buildings, agriculture, forestry, and waste. These efforts are underpinned by a robust legal and policy framework—including the Energy Road Map, key legislation, and the National Sustainable Development Plan—ensuring full alignment of public finance and sectoral policies with climate and sustainable development objectives.

Just transition and social inclusion are central pillars, with a strong focus on ensuring the benefits of the energy transition reach rural, remote, and vulnerable communities. Public funds are prioritized for off-grid and rural electrification, institutional capacity-building, and preventing marginalization, while gender-responsive climate finance remains a priority for further progress. Inclusive governance, involving women, youth, customary leaders, and civil society, is embedded throughout planning and implementation.

To deliver on its ambition, Vanuatu is leveraging multilateral and bilateral climate finance, technical assistance, and private investment, operationalized through the Vanuatu Climate Finance Country Platform—a centralized, country-owned mechanism that streamlines and coordinates diverse financial flows in alignment with national priorities and human rights principles. This platform, functioning as a de facto "one-stop shop," is designed to strengthen national fiduciary systems, promote donor coordination, and ensure efficient, transparent, and equitable climate action. Vanuatu's NDC 3.0 thus serves as a blueprint for transformative, inclusive climate action, contingent on predictable and accessible international support and continued progress on social inclusion and gender equity.

CASE STUDY FIVE

Public Finance for Coal Phaseout in Chile[76]

Chile's National Decarbonisation Strategy, launched in 2019, is a government-led initiative to phase out coal-fired power plants and transition to a cleaner energy matrix. The strategy is grounded in public-private collaboration and a clear policy framework, with a strong role for public finance in enabling a just and orderly transition.

The Chilean government, through the Ministry of Energy, has played a central role in facilitating the coal phaseout by:

- Providing regulatory certainty and long-term planning, which reduces investment risk for private actors and encourages investment in renewable energy.
- Mobilising international climate finance and technical assistance, including support from multilateral organisations and bilateral partners, to supplement domestic resources for energy transition projects.
- Supporting retraining and social programs for workers and communities affected by plant closures, ensuring that public funds are allocated to mitigate social impacts and foster new economic opportunities.
- Investing in grid modernisation and infrastructure, using public resources to enable the integration of renewables and maintain energy security as coal is phased out.

By 2020, Chile had already retired several coal plants and set a clear timetable for the complete phaseout of coal by 2040. The strategy emphasises transparency, stakeholder engagement, and the use of public finance to leverage private investment and international support.

76 Ministerio de Energía. (2020). *Coal Phase-out and/or Reconversion of Coal Units*

BOX FIVE

Australia's Use of Public Finance in the Energy Transition [not so Just and Equitable]

Australia is undergoing a significant transformation in its extractive and energy sectors, driven by rising global demand for low-carbon technologies and evolving geopolitical dynamics. Public finance has been central to this shift, with major investments in critical minerals development, renewable energy deployment, and regulatory innovation. While these initiatives are shaping Australia's low-carbon trajectory, serious concerns remain about their social and environmental justice outcomes.

Federal and state governments have made critical minerals a cornerstone of Australia's industrial policy. Over $6.6 billion in public funds has been committed since 2019 through grants, concessional loans, and shared infrastructure investments.[81] This investment reflects a form of green developmentalism, where public finance is used to support industrial upgrading while keeping private capital central.[82]

However, the justice dimensions of this approach are lacking. The strategies pay limited attention to improving environmental and social regulation, despite framing Australia's existing standards as a competitive edge.[83] [84] Provisions for First Nations engagement and rights, including free, prior, and informed consent (FPIC), are vague and inconsistently applied—raising the risk of conflict and legitimacy crises. Moreover, project siting often overlaps with areas of socio-economic disadvantage, exacerbating spatial inequality.[85]

Australia has deployed policy instruments like premium feed-in tariffs (FiTs) and the Renewable Energy Target (RET) to stimulate clean energy investment. Econometric modelling confirms that:

- FiTs have long-term effectiveness in reducing emissions, though short-term results are more mixed;
- The RET has consistently driven emissions reductions in both short- and long-term analyses.[86]

These instruments demonstrate how well-designed public policy—combined with institutions like the Clean Energy Finance Corporation—can catalyse a shift in energy composition.[87] However, while successful in advancing environmental outcomes, these policies are less clear in their contribution to social equity or community-level benefits, and the role of public finance in achieving broader justice objectives is under examined.[88]

To summarise, Australia has made major public finance commitments in support of its energy transition, particularly in critical mineral development and renewable energy policy. These efforts have helped drive industrial upgrading and carbon emissions reductions, while fostering regulatory and technological innovation.[89] [90] However, the current strategy risks entrenching extractive practices and inequality. Critiques highlight persistent gaps in environmental and social safeguards, inadequate respect for First Nations' rights, and insufficient emphasis on equitable outcomes. Without course correction, public finance may continue to underwrite transitions that are green in form but unequal in substance.

77 Sinclair, L., & Coe, N. M. (2024). Critical mineral strategies in Australia: Industrial upgrading without environmental or social upgrading. *Resources Policy*, 91, 104860.

78 Sinclair, L., & Coe, N. M. (2024). Critical mineral strategies in Australia: Industrial upgrading without environmental or social upgrading. *Resources Policy*, 91, 104860.

79 Sinclair, L., & Coe, N. M. (2024). Critical mineral strategies in Australia: Industrial upgrading without environmental or social upgrading. *Resources Policy, 91*, 104860.

80 Albanese, A., & King, M. (2023). $2 billion critical minerals boost crucial to energy transition. Prime Minister, Minister for Resources Media Release

81 Sinclair, L., & Coe, N. M. (2024). Critical mineral strategies in Australia: Industrial upgrading without environmental or social upgrading. *Resources Policy*, 91, 104860.

82 Zakari, A., Khan, I., Alvarado, R., & Missaoui, I. (2024). The impact of renewable energy rebates on environmental sustainability in Australia. *Australasian Journal of Environmental Management*, 31(1), 108–125. https://doi.org/10.1080/14486563.2024.2326090

83 Mirza, Z. T., Anderson, T., Seadon, J., & Brent, A. (2024). Renewable Energy Focus. *Renewable Energy Focus*, 49, 100562. https://doi.org/10.1016/j.ref.2024.100562

84 Zakari, A., Khan, I., Alvarado, R., & Missaoui, I. (2024). The impact of renewable energy rebates on environmental sustainability in Australia. *Australasian Journal of Environmental Management*, 31(1), 108–125. https://doi.org/10.1080/14486563.2024.2326090

85 Mirza, Z. T., Anderson, T., Seadon, J., & Brent, A. (2024). Renewable Energy Focus. *Renewable Energy Focus*, 49, 100562. https://doi.org/10.1016/j.ref.2024.100562

86 Aydın, Z., & Yardımcı, O. (2024). Regulatory sandboxes and pilot projects: Trials, regulations, and insights in energy transition. *Engineering Science and Technology, an International Journal*, 56, 101792. https://doi.org/10.1016/j.jestch.2024.101792

BOX SIX

Carbon Tariffs and Trade Measures

As some nations accelerate climate action, certain countries/blocs are introducing trade measures like the European Union's Carbon Border Adjustment Mechanism (CBAM), which imposes fees on carbon-intensive imports to prevent "carbon leakage" and level the playing field. However, these measures have raised equity and geopolitical concerns. Developing countries fear that carbon tariffs will undermine their export competitiveness,[79] particularly in Africa, where CBAM could lead to significant economic losses—up to 0.5% of GDP.[80] Moreover, the EU's decision not to exempt least developed countries or earmark CBAM revenue for decarbonization projects has sparked criticism, with developing nations seeing this as a double burden. To ensure equity, trade measures should be paired with climate finance or technology transfer, with revenues reinvested in decarbonization efforts in affected countries, or temporary exemptions granted. Unilateral climate policies can create friction and potentially lead to trade wars, underscoring the need for cooperative solutions, such as climate clubs or agreements linking carbon pricing with support for decarbonization in poorer nations.

87 https://www.cgdev.org/blog/eus-carbon-border-tax-how-can-developing-countries-respond

88 Center for Global Development, 2023: The EU's Carbon Border Tax: How Can Developing Countries Respond? – analysis of CBAM impacts on low-income countries

6. Policy Recommendations for Mobilising Public Finance Toward a Just Energy Transition

Prioritise Public Finance for Systemic Change

Public finance should be directed not just to de-risk private investments, but to underwrite national and local plans for just, inclusive, and climate-compatible energy transitions—especially where projects are not immediately "bankable." This includes funding for:

- Universal energy access (especially decentralised renewables)
- Social protection and reskilling for affected workers
- Community-led renewable projects
- Regulatory and institutional reforms for circular economy and environmental safeguards

End fossil fuel subsidies

Currently fossil fuel subsidies remain a significant barrier to the shift to renewables by allocating vast amounts of public funds to artificially lower fossil fuel prices. This can be achieved by setting clear, binding timelines for phasing out such subsidies, ensuring transparent reporting on subsidy expenditures and their impacts on climate goals, and implementing social protection measures to support communities and workers affected by the transition. Additionally, state-owned fossil fuel companies should be incentivised through progressive subsidies to diversify into renewable energy sectors, similar to Ørsted's transformation.[89] These reforms will dismantle financial barriers, promote sustainability, and help meet global climate commitments.

Embed Justice in All Energy Policy and Planning

Governments and international agencies should explicitly require that all national energy transition plans include justice and equity criteria—such as social protection, community participation, and respect for Indigenous and human rights—at every stage, from planning to implementation.

Accelerate Decentralised, Community-Owned Renewables

Development banks and climate funds should earmark a significant share of funding for decentralised, community-driven renewable energy solutions, with technical assistance and capacity-building for local actors. National governments should set targets for the percentage of new energy capacity to come from such projects.

Strengthen Safeguards Against New Extractivism

All renewable energy and critical minerals projects must be subject to robust environmental and social safeguards, including free, prior, and informed consent (FPIC) for Indigenous and local communities, and strict adherence to circular economy principles. Governments should adopt a precautionary approach to deep-sea mining, supporting moratoriums where science indicates risk to biodiversity and climate regulation.

Reframe Global Finance and Cooperation

High-income countries should commit to scaled-up, predictable, and grant-based climate finance, including in the Baku to Belem USD 1.3 trillion Roadmap at COP30 for developing countries, especially for vulnerable countries (SIDS, LDCs)—not as charity, but as a rational investment in global stability and shared prosperity. International cooperation should focus on technology transfer, capacity-building, and joint ventures that prioritise justice and local benefit.

Monitor, Report, and Learn

Establish independent, transparent monitoring and reporting mechanisms for just energy transition initiatives, with regular public updates and opportunities for affected communities to provide feedback. Lessons learned should be rapidly shared and integrated into policy cycles.

89 http://nature.com/articles/d41586-021-02847-2

Conclusion

The imperative of a just energy transition has never been clearer. Climate change demands urgent, wholesale transformation of our energy systems, but this action will only succeed if it is rooted in justice and inclusivity. A transition that delivers climate action with equitable access can secure a livable planet and improve human well-being for all. An inequitable transition, where the burdens fall on the most vulnerable, will falter, entrench inequality, and ultimately fail to achieve its climate goals.

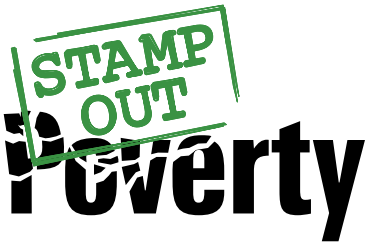
This paper has demonstrated that public finance is the critical enabler for a just and equitable energy transition. However, the greatest barrier to its mobilization is not a global lack of capital, but a profound crisis of international cooperation. A deep and damaging trust deficit, born from decades of broken promises by developed countries, continues to paralyze progress. Wealthy nations have repeatedly acknowledged their obligation to support developing countries under the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), yet their actions have fallen short.

The failure to deliver the promised real climate finance is a primary source of this mistrust. Furthermore, much of the finance that has been provided comes as loans, not grants, pushing climate-vulnerable nations deeper into debt. This creates the perverse outcome that developing countries experience huge net capital outflows in debt service payments, draining the very resources needed for climate action. New partnership models like the Just Energy Transition Partnerships (JETPs) have also been fraught with issues; the initial deal for South Africa, for instance, delivered only a fraction of the estimated need and a paucity of grant funding created "friction and distrust" instead of building a true partnership.

As the world looks ahead to COP30, it is a critical juncture to rebuild this broken trust. Developed countries must come forward with real commitments that move beyond rhetoric. This requires delivering scaled-up, predictable, and primarily grant-based public finance that allows developing nations to pursue their own just transitions without worsening their debt burdens.

This is not a matter of charity, but of justice and pragmatism. It is an acknowledgment of the historical responsibility that industrialized nations bear for the climate crisis. It is also, as this paper shows, a rational investment in global stability and shared prosperity. In a deeply interconnected world, an unmitigated climate crisis in one region threatens the security and economic well-being of all.

On the road to COP30, solidarity and enlightened self-interest must be recognized as two sides of the same coin. The only pathway to global climate success is one built on genuine cooperation and financial commitments that finally bridge the trust deficit.



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