

Mind the gap: Rethinking transitions along the energy access finance continuum

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A knowledge brief to share evidence and insights with the TEA platform

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Transforming
Energy
Access



Strengthening the finance continuum: evidence from TEA.

This policy brief is aimed at FCDO and Ayrton leadership, Transforming Energy Access (TEA) platform implementers, fund intermediaries, and delivery partners. It presents key findings from a study examining how companies within the TEA platform navigate the finance continuum and the factors that shape their ability to progress, scale, and deliver impact. Drawing on interview data from TEA funders and delivery partners, alongside continuous engagement with the platform, this study shows that companies move through finance stages in iterative and non-linear ways, rather than following a straightforward, linear pathway. The study highlights gaps between funding stages and the continued need for grants as companies progress beyond start-up, and the need for patient and blended finance to support longer development cycles and capital-intensive technologies. It offers a practical and strategic lens for strengthening financing pathways so that innovative companies can grow, scale and deliver sustainable impact across technologies and differing market contexts.

KEY MESSAGES

- **Energy access companies do not follow a linear finance pathway; they move iteratively across grants, equity and debt, often returning to earlier stages.**
- **Significant financing gaps persist between seed funding and Series A, and again between Series A and Series B/C, slowing company growth.**
- **Grants remain essential well beyond start-up, supporting Research and Development (R&D), model testing and market replication during scaling.**
- **Short investment cycles and rigid exits do not match long payback periods in off-grid, mini-grid and e-mobility ventures; patient capital is needed to bridge this “pioneer gap.”**
- **Fragmentation between grant, equity and debt instruments creates friction and missed transitions; coordinated financing pathways can improve investment readiness.**
- **Better integration across TEA’s Open Calls, Venture Building and intermediary support will create smoother, more predictable finance journeys for companies.**
- **Blended and off-balance-sheet finance can de-risk scaling and attract more commercial capital into high-impact technologies.**
- **Building a more connected finance ecosystem will strengthen company sustainability and accelerate progress toward universal energy access.**

ABOUT THIS BRIEFING

This policy brief summarises findings from a multi-year study on the financing journeys of energy access companies, exploring the complexities of transitioning between funding types and stages and the critical junctures where funding gaps emerge. The study also explored the impact these disruptions have on the ability of companies to effectively contribute to universal energy access targets. The research was undertaken by the University of Cape Town through the TEA Research Support Services and draws on 55 interviews with stakeholders in within the TEA platform, case studies, and continuous engagement with partners across the programme. This brief offers a focused synthesis of the research findings for funders, programme managers, and implementers.

BACKGROUND TO THIS KNOWLEDGE BRIEF

Financing off-grid and clean energy solutions is essential to closing the energy access gap and reaching underserved and last-mile populations [1,2,3]. This covers funding for early innovation and scale-up across the full spectrum of technologies and delivery models, from stand-alone solar and mini-grids to energy storage and clean cooking at the scale needed to deliver Sustainable Development Goal 7. This requires continued innovation and significantly more accessible, appropriate finance [4]. Globally, energy infrastructure delivery has shifted from being a largely public service to models increasingly driven by public-private partnerships and the private sector, with off-grid energy solutions playing a central role in closing energy access gaps [2]. Achieving universal energy access while advancing decarbonisation requires substantial capital mobilisation from both public and private financiers. Off-grid energy companies must work across a range of financing instruments as their risk profiles, capital structure, operational needs, delivery models, market position and long-term strategies evolve [5,6,7]. Drawing on research findings from the TEA platform, this briefing note examines how energy access companies move through the finance continuum and what shapes their financing trajectories.

NON-LINEAR PATHWAYS ACROSS THE FINANCE CONTINUUM

Energy access companies need different forms of finance as they move from early-stage ventures to established operations. The finance continuum, also known as the capital continuum, outlines the financing mechanisms accessed across the lifecycle of these companies [6,8]. **The continuum describes a company's progression from early- to later-stage finance, mapping how financing options and investor types shift over time.** It captures the stages of a companies' financing trajectory and the instruments typically accessed at each stage, illustrating how needs evolve from development through growth, scaling and maturity, and how different funders, investors and financial tools become relevant.

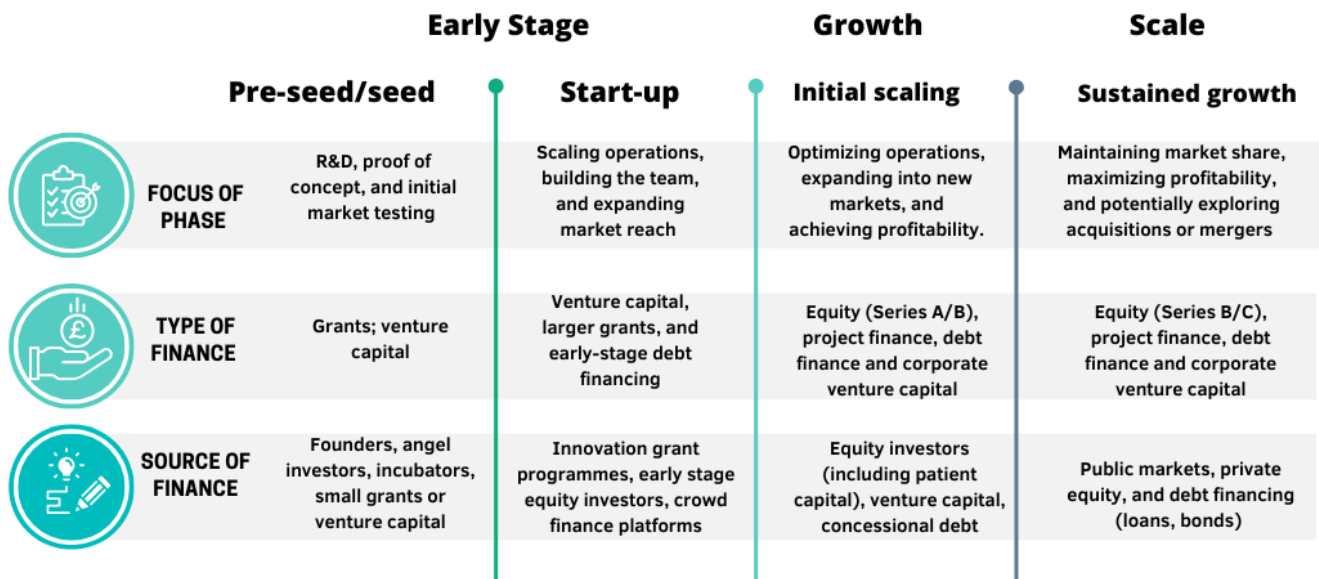


Figure 1: Finance continuum (Source: Authors, Adapted from: [9,10,11])

The finance continuum (Figure 1) captures the full set of financing instruments drawn on by energy access companies—ranging from grants (such as catalytic innovation and results-based finance), to patient and impact-oriented equity, diverse debt instruments [12,13,2], and blended finance structures designed to use public funds to leverage or “crowd-in” private capital. Alongside these, alternative financing mechanisms, such as crowd-finance, are increasingly adopted within the sector [14].

The traditional capital continuum assumes a linear progression from early-stage grants and seed equity toward later-stage equity and debt. However, this study shows that energy access companies follow far more dynamic, non-linear financing trajectories due to the complexities of delivering clean energy technologies and business models in reality. To illustrate, even established companies often return to ‘earlier-stage’ finance because of the distinct challenges of operating in off-grid and underserved markets. As they grow, many do not simply “graduate” beyond grants or seed finance. Instead, companies often move back and forth between financing stages in response to market conditions, technological shifts, strategic adjustments, and persistent affordability or viability gaps. Furthermore, financing pathways also differ by sector (e.g., renewable energy vs. energy efficiency) and geography, adding further complexity. **This non-linear reality highlights the need for flexible financing mechanisms across different stages of company and technology development.** Understanding this dynamic continuum is key to scaling energy-access innovation and advancing SDG7, with adaptive blends of grants, equity and debt needed to close persistent access gaps.

FINDINGS – THE FINANCE CONTINUUM IN THE TEA PLATFORM

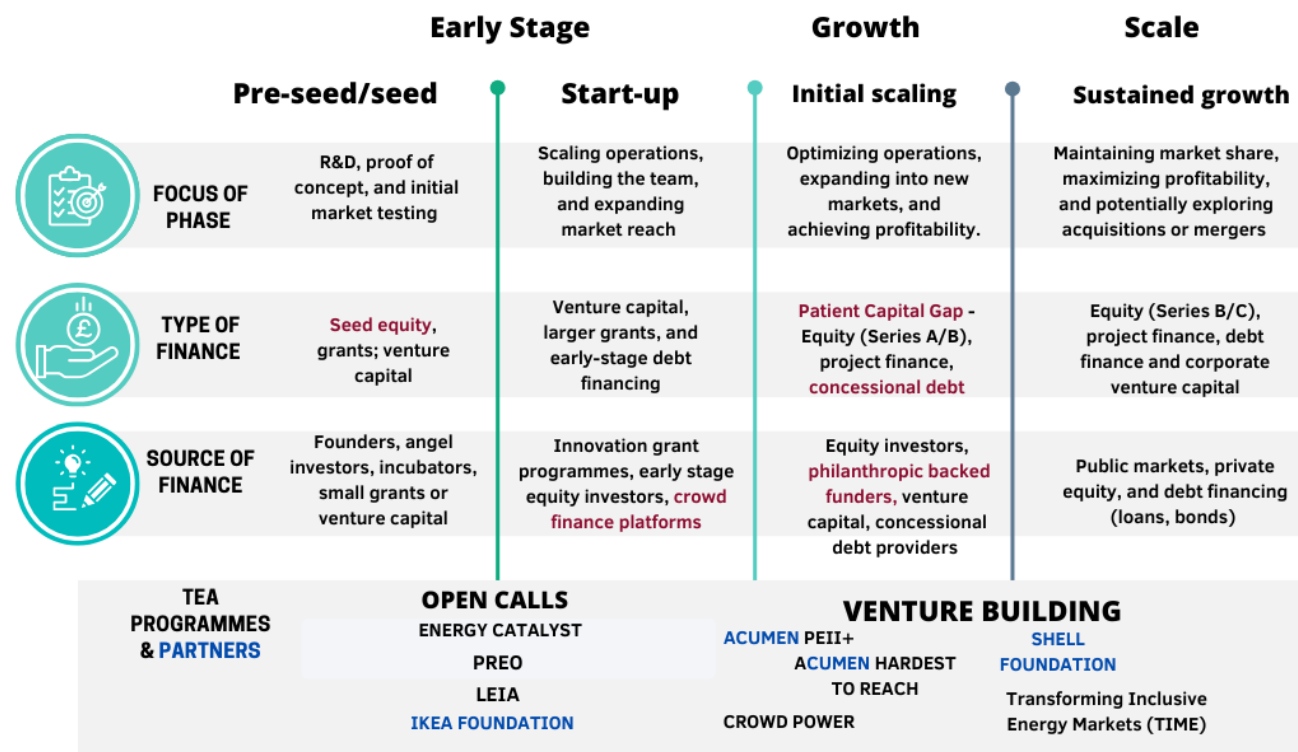


Figure 2: TEA ecosystem actors across the finance continuum (Source: Authors)

FINDING 1: NAVIGATING A NON-LINEAR FINANCE CONTINUUM

Financing journeys in the energy access sector are rarely linear. Companies often loop back to earlier forms of funding, especially grants, even as they secure later-stage investment, reflecting the realities of continued R&D, market development and operational risk. It is common for firms to raise different types of capital in parallel, such as combining grants with equity rounds, to maintain innovation momentum while meeting day-to-day demands. Progress along the continuum typically depends on demonstrating product-market fit and producing the evidence investors require. Innovation loans have been particularly influential in this regard, helping companies unlock the CAPEX needed for large demonstration projects and opening pathways to partnerships with infrastructure funds.

Characteristics of non-linear finance trajectories:

- **Iterative:** Companies cycle through periods of innovation, testing and refinement, each requiring renewed access to finance.
- **Parallel:** Multiple fundraising activities and development processes run simultaneously.
- **Adaptive:** Firms adjust their financing strategies as markets, technologies and regulatory environments shift.

Early-stage finance as the foundation for company progress

Grants, innovation loans and early-stage equity remain essential for how energy access companies build, test and refine their technologies and delivery models. In practice, firms do not move neatly from one instrument to the next. Instead, they combine grants, equity and debt simultaneously to meet different operational and strategic needs. Even for companies beyond Series A, grant funding continues to support R&D, business model experimentation and de-risking.

Structural challenges and sector-specific dynamics

Delayed revenue streams, long payback periods and capital-intensive assets (e.g., cold rooms) require patient, flexible and blended finance. Rapid technological change, diverse business models and regulatory complexity create unpredictable financing trajectories. These dynamics reinforce the continued importance of early-stage and risk-tolerant capital in helping companies move—often non-linearly—across the continuum.

FINDING 2: FINANCING R&D AND SCALING RISK

As companies associated with the TEA platform evolved, their financing mix observed shifts across grants, debt, equity and strategic partnerships. Interviewees explained that the role of grants also changes across stages of development. To illustrate, in the early phases, grants enable proof of concept, R&D and initial business-model testing. At later stages, they are deployed more strategically, for example, to de-risk scaling decisions, test replication in new markets, and validate commercial pathways. This illustrates a transition from grants as catalytic capital to grants as targeted risk-management instruments during expansion.

Strategic use of debt and partnerships

Interviewees highlighted that debt is effective for financing proven, revenue-generating assets such as electric vehicle charging hubs and battery systems, in e-mobility applications. However, as companies scale, maintaining debt on the balance sheet becomes less viable. Off-balance-sheet structures and asset-financing partnerships

allowed companies to expand infrastructure without compromising debt-to-equity ratios. This approach, which is particularly relevant for high-cost, standardised assets such as storage and e-mobility infrastructure, illustrates the importance of aligning financing strategies with specific technologies and business models.

“Where grant funding has been more catalytic in nature in the beginning, now it’s enabling [us] to test new business models, or replicate what we’ve done in one context to another. So, it’s less about supporting proof of concept, but more de-risking some of those decisions before we then scale into a different direction.”- Solar cooling company

Role and value of grants

Analysis of the interview data demonstrated that grants continue to play an essential role in early-stage innovation, market testing and de-risking both R&D and scale-up activities within the TEA platform. Many companies within TEA rely on grants not only at start-up but also during later stages to test new geographies, refine models or build evidence for investors. In doing so, grants helped companies gain traction and improve their ability to secure commercial capital.

Gap between R&D funding and commercialisation

A central finding of this study is the persistent gap between successful R&D outcomes and the availability of follow-on financing that supports commercialisation. Companies that demonstrate viable models through grant-funded R&D often struggle to secure the follow-on capital required for scale. Interviewees from the financing sector pointed to the lack of structured pathways into commercial investment, which leaves many firms returning to grants rather than advancing along the finance continuum.

“There often is a gap... when an enterprise grows to a Series A level. There might be some innovation capital, incubation capital and even seed capital available at Series A. So, when they’re in the growth Series B level, they’re not yet... de-risked for some of the more commercial investors, but they’re not early stage enough... to be reliant on grant anymore... that has been the missing middle...” - TEA partner funder 1

FINDING 3: PREPARING FOR GROWTH AND INVESTMENT

Gaps along the finance continuum and the “missing middle” in energy access financing

Interviewees consistently highlighted significant gaps along the finance continuum, particularly between early-stage capital (grants, seed funding) and the later-stage equity needed to reach commercial viability. Early R&D grants allow companies to test business models and de-risk operations, but many struggle to secure the equity required to cross the “valley of death”, which refers to the critical and often underfunded stage between early innovation and commercial readiness. Funders within the TEA platform described this challenge as a persistent “missing middle,” especially for companies moving from Series A to Series B. At this point, firms are typically too advanced for further grant funding yet not sufficiently de-risked for commercial investors. Funding at this level remains limited and requires substantial scaling to support companies progressing along the continuum.

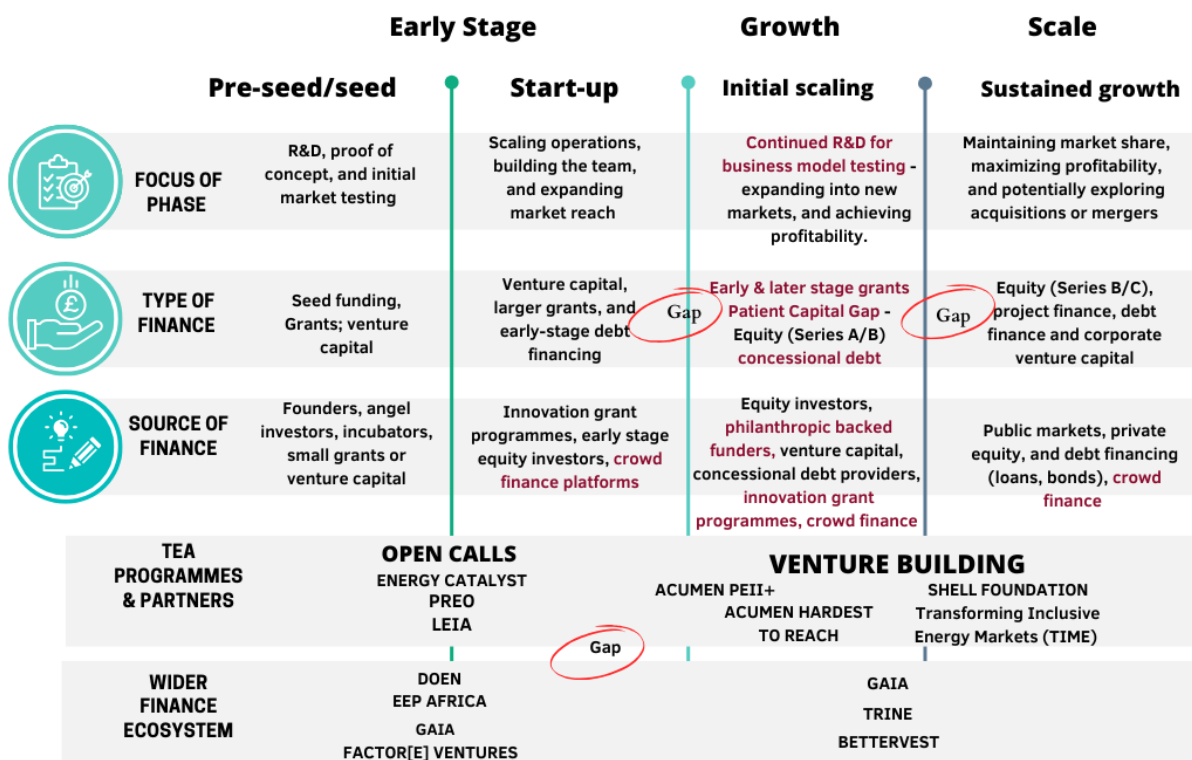


Figure 3: Finance Continuum (V3) and Key Funding Gaps (Source: Authors).

Equity readiness and structural misalignment

The interviews revealed that transitioning from grants to equity introduces a set of challenges for many early-stage energy access companies. For several enterprises, early equity investors, often TEA-linked funds, are their first encounter with institutional investment, bringing new governance, reporting and compliance expectations. These include preparing management accounts, undertaking audits and establishing advisory boards. Many early-stage companies lack these systems or do not initially recognise their value, slowing investment readiness. Alongside this, interviewees highlighted a broader misalignment between how equity instruments are designed and what early-stage firms can realistically manage. Investor expectations, reporting requirements, governance standards and risk appetite often sit at odds with the capacities and needs of young enterprises. This mismatch reinforces the challenges of moving from grant-funded operations into commercial investment and contributes to delays in achieving investment readiness.

Leveraging intermediaries and providing investment-readiness support

TEA's approach increasingly combines support for fund intermediaries with targeted company-level assistance. Backing intermediaries such as Persistent Capital, Factor[E] Ventures and EchoVC strengthens the pipeline of investment-ready firms and enables impact to scale more effectively than direct grants alone. Complementing this, TEA's finance catalysts and venture-building initiatives provide tailored investment-readiness support, including financial modelling, reporting and legal compliance tools, to help companies progress from grant dependence toward equity or debt financing. Together, these mechanisms enhance firms' ability to secure later-stage capital and progress along the finance continuum.

CONCLUSION AND RECOMMENDATIONS

This brief shows that energy access companies follow non-linear, iterative and often unpredictable financing pathways that diverge sharply from the traditional linear finance continuum. Evidence from the TEA platform points to clear gaps between early- and later-stage capital, an ongoing need for grants well beyond start-up, and a disconnect between grant, equity and debt instruments that complicates progression to scale. Companies also face long development cycles, capital-intensive assets and delayed revenue streams, all conditions that require more flexible, patient finance than most commercial investors currently offer. For TEA and its partners, strengthening programme design, improving alignment across support mechanisms and scaling patient and blended finance will be essential to support enterprise growth and sustained impact.

Recommendations from this research include:

- 1. Expand patient, long-term capital.** Increase the availability of 7–12-year patient or catalytic capital to absorb early losses, support product–market fit, and help firms reach commercial readiness—particularly in capital-intensive and slow-payback technology areas.
- 2. Design support for non-linear financing journeys.** Assume iterative progression rather than linear pathways. Align programme design with the realities of cycling between grants, innovation loans and equity, adjusting support as companies evolve.
- 3. Bridge the two major gaps in the finance continuum.** Targeted mechanisms are needed to:
 - Close the gap between early-stage grants/seed funding and Series A; and
 - Close the gap between Series A and Series B/C.

Addressing these is essential to avoid stalled growth and repeated returns to grant finance.

- 4. Maintain strategic grants beyond start-up.** Ensure continuous access to R&D, testing and replication grants during growth and scaling. Grants could explicitly support later-stage experimentation, market replication and de-risking for follow-on capital, beyond early-stage grant support.
- 5. Improve integration across grants, equity and debt.** Promote shared milestones, coordinated investment-readiness criteria and clearer handovers between different funding instruments to reduce friction for firms and create more predictable pathways.
- 6. Strengthen coherence across TEA platform support.** Better integrate Open Calls, Venture Building and intermediary support to create smoother progression routes. Expand approaches such as off-balance-sheet finance and strengthen the wider investment ecosystem—including intermediaries—to improve company readiness and long-term sustainability.

KEY MESSAGES FOR TEA, FUNDERS AND POLICY-MAKERS

For TEA, implementing the recommendations above requires aligning funding instruments, programme structures and support services with the non-linear finance journeys observed across TEA-supported companies.

... FOR TEA PLATFORM DESIGN

- **Align TEA3 architecture with real, non-linear financing journeys.** Because companies do not progress through the finance continuum in a straight line, TEA3 could design its support model around iterative, cyclical financing needs, ensuring smooth transitions between grants, innovation loans and equity, and embedding investment-readiness throughout.

- **Close the two structural gaps in the finance continuum to promote scaling.** To deliver Ayrton’s lab-to-market ambition and accelerate SDG7 outcomes, TEA could target the two critical gaps: between early grants/seed capital and Series A, and between Series A and B/C. Programme instruments such as patient capital, catalytic funding and coordinated handovers, could be structured to help companies smoothly transition through these stages.
- **Build an integrated financing ecosystem across TEA portfolios.** Greater coherence between Open Calls, Venture Building, intermediaries and blended-finance facilities will strengthen the innovation pipeline. A better connected ecosystem, linking funders, intermediaries, investors and technical support, can support clearer pathways to scale and support TEA to deliver increased impact.

... FOR FUNDERS AND INVESTORS

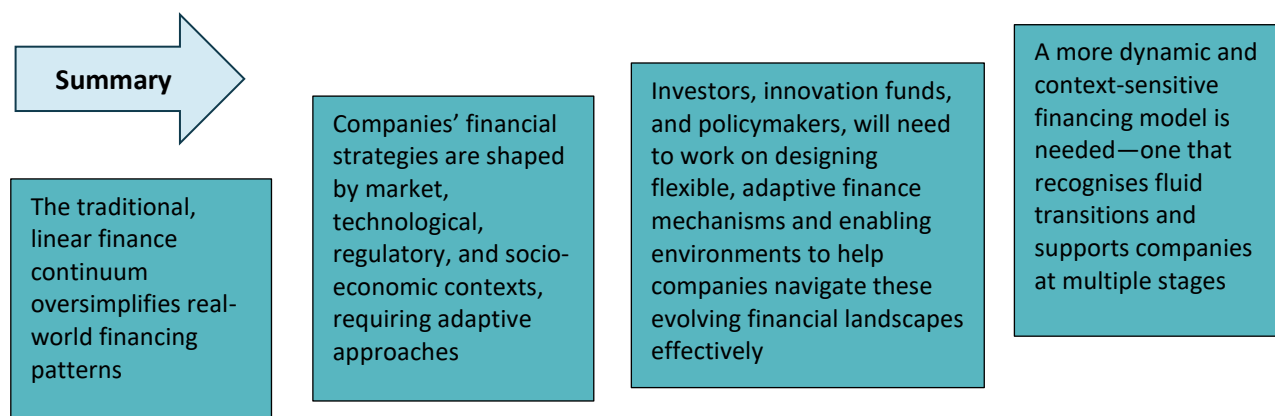
- **Move beyond linear financing assumptions about how companies ‘progress’.** Financing for energy access needs to adapt to the iterative, stop-start nature of innovation in this sector. Funders and investors can play a key role in this by adopting **adaptive financing strategies** that integrate grants, equity and debt, and by supporting companies to draw on these instruments at different points in their growth.
- **Strengthen alignment between grant programmes and investment stages.** Well-designed grant windows, targeted technical assistance and pipeline-bridging mechanisms can help companies meet the governance, reporting and financial standards required by commercial investors. Transition grants, explicitly aimed at helping companies shift from grant dependence to commercial capital, can also address a major bottleneck in the finance continuum. Here TEA’s new Venture Grant facility, fills a key role in addressing part of this gap, supporting the pipeline of investment, through providing venture grants to eligible companies. This also notes a shift from innovation pilot level finance to company finance, to enable transitions towards commercial investment.
- **Build more fluid transitions across the finance continuum.** Funders and investors could actively build more fluid transitions between stages of capital, maintain ongoing access to grant and innovation finance alongside equity and debt, and promote flexible, blended and patient capital suited to the long development cycles typical of energy access ventures. This includes helping companies strategically leverage diverse financing tools to manage risk, unlock follow-on investment and scale proven technologies.

... FOR POLICY MAKERS

- **Create an enabling environment that supports non-linear financing journeys.** Policy makers have an essential role in shaping the broader enabling environment that allows companies to move through the finance continuum. Incentives for patient capital supported by policy makers, such as targeted tax measures, concessional loan schemes and mechanisms that encourage public–private partnerships, can help attract investors willing to work with longer payback periods.
- **Strengthen continuity from R&D to market deployment.** Improving coordination between funders, investors and governments is essential for supporting continuity from R&D to market deployment. Policy makers can strengthen these transitions by embedding pathways for follow-on finance, re-examining the role of R&D

funding within the wider continuum, and ensuring it supports commercialisation rather than experimentation alone.

- **Reduce perceived risk through fiscal and regulatory reform.** Risk-reduction mechanisms, simplified permitting and licensing processes and clearer grid-integration policies can reduce perceived risk and encourage private lenders and investors to back energy access companies.
- **Scale blended finance models to unlock investment.** Expanding blended finance structures, for example, by combining public and private capital, can create long-term, flexible investment models suited to both impact-oriented and commercial investors.
- **Adapt policy approaches to local market realities.** Finally, policy approaches need to be context-specific, responding to country-level market conditions and regulatory landscapes to effectively support diverse technologies, delivery models and investment needs.



REFERENCES AND SOURCES

[1] Oniemola, P.K. Ezirigwe, J. (2018). Financing energy access in Africa. Ending Africa's Energy Deficit and the Law: Achieving Sustainable Energy for All in Africa.

[2] Michoud, B., Hafner, M., (2021). Financing clean energy access in Sub-Saharan Africa: Risk mitigation strategies and innovative financing structures (p. 197). Springer Nature.

[3] Falchetta, G., Michoud, B., Hafner, M., Rother, M. (2022). Harnessing finance for a new era of decentralised electricity access: A review of private investment patterns and emerging business models. Energy Research & Social Science, 90, p.102587.

[4] Baker, L. (2015). The evolving role of finance in South Africa's renewable energy sector. *Geoforum*, 64, pp.146-156.

- [5] Berger, A., Udell, G. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance*, 22(6), 613-673.
- [6] Servon, L., Visser, M., Fairlie, R. (2010). The continuum of capital for small and micro enterprises. *Journal of Developmental Entrepreneurship*, 15(03), 301-323.
- [7] Dayi, F., Adaiem, N. (2022). Financial Risk Analysis in Renewable Energy Companies. *Quantrade Journal of Complex Systems in Social Sciences*, 4(2), pp. 44-50.
- [8] Prowse, S.M., Rea, J., Udell, G. (1993). The economics of private placement markets. *Financial Market, Institutions and Instruments*, 2.
- [9] Ghosh, S., Nanda, R. (2010). Venture capital investment in the clean energy sector. *Harvard Business School Entrepreneurial Management Working Paper*, pp. 11-20.
- [10] Global Distributors Collective (2022). Last mile distribution capital continuum: trends, gaps and opportunities. Available online: https://infohub.practicalaction.org/bitstream/handle/11283/622923/GDC%20LMD%20capital%20continuum%20research_July%202022.pdf?sequence=1&isAllowed=y. Accessed 4 March 2025.
- [11] Acumen (2024). The right capital at the right time: Experts weigh in on the agriculture capital continuum. Available: <https://acumen.org/blog/experts-weigh-in-on-the-agriculture-capital-continuum/>. Accessed Jan 6, 2025.
- [12] Waissbein, O., Bayraktar, H., Henrich, C., Schmidt, T., Malhotra, A. (2018). Derisking Renewable Energy Investment: Off-Grid Electrification: A Framework to Support Policymakers in Selecting Public Instruments to Promote Private Investment in Solar PV-Battery Mini-Grids in Developing Countries. New York: United Nations Development Programme.
- [13] BloombergNEF & SEforAll (2020). State of the Global Mini-grids Market Report 2020. BloomBergNEF. Available: <http://dergipark.gov.tr/cumusosbil/issue/4345/59412>. Accessed Jun 20, 2023.
- [14] Lam, P., A. Law, A. (2016). Crowdfunding for renewable and sustainable energy projects: An exploratory case study approach. *Renewable and Sustainable Energy Reviews*, 60: pp. 11-20.

FURTHER ENGAGEMENT

For further information, clarification, or access to additional materials related to this research—including the academic publication that accompanies this brief—readers are invited to contact the lead author. Supplementary tools, methodological notes, and supporting resources can be provided upon request. This brief was prepared by the University of Cape Town as part of the Transforming Energy Access (TEA) Research Support Services.

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