



Alitheia

Creating Wealth. Transforming Lives.

Africa, Ahead of the Curve

Four Alitheia case studies on capital, climate, and the energy transition.

VOLUME 1

PREPARED FOR
LONDON CLIMATE ACTION WEEK
JUNE 2026.



HOW THIS VOLUME READS

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List of Abbreviations

Climate & Energy

LPG	Liquefied Petroleum Gas
LFP	Lithium Iron Phosphate
NDC	Nationally Determined Contribution
MRV	Measurement, Reporting and Verification
tCO2e	Tonnes of carbon dioxide equivalent
VCS	Verified Carbon Standard
SE4All	Sustainable Energy for All
CCA	Clean Cooking Alliance
GCF	Green Climate Fund
ESMAP	Energy Sector Management Assistance Program
ECOWAS	Economic Community of West African States
GOGLA	Global Off-Grid Lighting Association

Funds & Organisations

AIF	Alitheia IDF Fund
CCFI	Clean Cooking Fuel Initiative
CCOC	Clean Cooking-Fuel On-lending Company
AID-I	Accelerated Innovation Delivery Initiative
DFI	Development Finance Institution
MFI	Microfinance Institution
USAID	United States Agency for International Development

Finance & Investment

CPI	Climate Policy Initiative
GIN	Global Impact Investing Network
2X	2X Challenge (gender-lens investment criteria)

Country-Specific Bodies

PPPRA	Petroleum Products Pricing Regulatory Agency (Nigeria)
NMDPRA	Nigerian Midstream and Downstream Petroleum Regulatory Authority
ECG	Electricity Company of Ghana

Others

ARISE	Agency, Relevance, Infrastructure, Skills, Engagement
LCAW	London Climate Action Week
SSA	Sub-Saharan Africa
MRC	Market Research Consultancy

The case for African capital and African solutions has never been louder, or more overdue.

For too long, African households and businesses have paid the price of a global energy system that left them behind. Dirty fuels in the kitchen. Diesel on the factory floor. Credit denied to the women who feed the continent. The cost is measured in lungs, in livelihoods, in lives — and in growth that never compounds because the inputs are never clean, never reliable, never affordable.

Alitheia Capital was built to change that arithmetic.

For more than two decades, we have invested behind a single conviction: that in African markets, financial performance, climate resilience, and gender-inclusive growth are not competing objectives. They are the same objective. Health, livelihoods, and shared prosperity for African families are not the soft outcomes of a portfolio designed for returns — they are the engine of those returns.

This is not a thesis we adopted when climate became fashionable. It is the thesis we have been compounding since before the global conversation arrived.

The four businesses collected here are the receipts.

A clean-cooking programme that put modern fuel within reach of 200,000 Nigerian households — most of them women — when the world had not yet decided clean cooking was a climate question. An industrial processor in Nigeria that cut emissions by solving its power problem, proving African decarbonisation is a financing challenge, not a technology one. A Zambian fintech extending solar-irrigation credit to women smallholders the formal system had written off, proving women farmers are the commercial thesis, not the social addendum. A Ghanaian cold-chain operator partly switching off diesel and onto second-life batteries supplied by a Nigerian circular-economy peer — proving climate-aligned infrastructure pays at small-business scale, across borders, on African terms.

Different sectors. Different countries. Different decades. One argument: capital designed for African realities, deployed with discipline, delivers the outcomes — commercial and human — that the world is now asking how to finance. This is what we mean by investing for impact, inclusive growth, and shared prosperity. Not a tagline. A track record.



TOKUNBOH ISHMAEL
MANAGING PARTNER, ALITHEIA CAPITAL



It is also why we are launching The Amplify Fund, our forthcoming fund. Amplify is not a pivot to climate, nor a new thesis dressed for a new audience. It is the next, larger expression of the work we have been doing for twenty years — gender-smart, climate-aligned, digitally enabled, commercially rigorous, locally built. The market is finally moving toward the position Alitheia has held from the beginning. Amplify is how we meet that moment at scale.

To the allocators, policymakers, and partners gathered at London Climate Action Week: the evidence in these pages is replicable, and the team behind it is ready. Alitheia was early. We intend to stay ahead.

“

Africa wasn't late to the climate debate. Africa was early. And Alitheia was investing for impact long before the world learned the word.

”

Two decades of conviction, four pieces of evidence






For nearly two decades, Alitheia Capital has invested behind one conviction: that in African markets, financial returns and meaningful outcomes for health, livelihoods, and inclusive growth are not in tension – they are the same investment. The businesses most exposed to climate risk are most often the same businesses excluded from climate finance: women-led, women-serving, locally rooted, structurally underbanked.

We were built to back exactly those businesses, and we have been doing so since long before the global capital markets learned to call it climate.

This collection brings together four case studies from across Alitheia's portfolio and strategic initiatives, spanning more than a decade of activity across Sub-Saharan Africa. Read together, they are not four stories. They are four pieces of the same evidence: that gender-smart capital and climate resilience are structurally linked across African growth markets, and that Alitheia has been deploying against that link since 2012.



EXHIBIT 1.1 · FOUR CASES, ONE SPINE

Household	Industrial SME	Underbanked consumer	Multi-site corporate
  <p>Clean Cooking CCFI · 2012–2015</p> <p>WHAT CHANGED 200,000 households reached; women 95% of borrowers; \$1.3M deployed; 306,000 tCO₂e avoided.</p> <p>WHY IT MATTERS AT LCAW Working playbook for the \$4bn/year clean-cooking financing gap.</p>	 <p>Psaltry 2025</p> <p>WHAT CHANGED On-site solar + blended capital – industrial decarbonisation made bankable.</p> <p>WHY IT MATTERS AT LCAW Demonstrates African industrial transition is not a future-decade aspiration.</p>	 <p>LupiYa 2025</p> <p>WHAT CHANGED Fintech rails for clean energy adoption – credit as the missing piece.</p> <p>WHY IT MATTERS AT LCAW Shows that the lender is the catalyst, not the energy product.</p>	 <p>Hinckley 2026</p> <p>WHAT CHANGED Board-led transition – governance, capex, operations, disclosure.</p> <p>WHY IT MATTERS AT LCAW Proves African corporates can lead, not lag, on credible transition.</p>

Each chapter is independently complete and can be read in any order. Together, they make the Alitheia case for capital, climate, and the African energy transition – and the case for Amplify.

Four cases, four sectors, one argument

CH. 1 · CCFI · 2012–15

Fourteen Years Ahead

Clean cooking was a climate question before the world called it one. CCFI answered first.

A decade before clean cooking sat at the centre of global climate and gender debates, Alitheia Capital co-structured the Clean Cooking Fuel Initiative (CCFI) with Oando to take on what was then a silent crisis: less than 1% LPG penetration in Nigeria, 80,000 lives lost a year to dirty fuels, women and girls absorbing the cost in time, health, and lost livelihoods. CCFI was Alitheia's earliest expression of a conviction that has driven the firm ever since – that investing in Africans' health, live lihoods, and inclusive growth is not a trade-off against returns. The chapter walks through the moment of insight, the four pillars (a 3kg cylinder designed around women's realities, an end-to-end supply chain, a wholesale on-lending vehicle, and women as the distribution model), and the outcomes that followed: 50,000 cylinders, 200,000 households reached, 306,000 tCO₂e avoided, women 95% of borrowers – and a blueprint that helped shape Nigeria's 2024 National Clean Cooking Policy.

CH. 2 · PSALTRY · 2025

Powering the Pivot

Cassava derivatives feeds Africa's pharmacies, bakeries, and pantries. Psaltry kept it flowing – cleanly.

Psaltry International is a women-led cassava processor in Nigeria and a portfolio company of AIF, Alitheia's gender-lens fund. Psaltry's starch and derivatives are critical inputs into the everyday products African consumers depend on – pharmaceuticals and mouthwash, baked goods, confectionery, packaged foods – which made the reliability of its energy supply a question of whether essential products reached the shelf. By 2023, Psaltry's 3,163 MWh annual load – 60% grid, 40% diesel – was costing the business hundreds of millions of naira (thousands of dollars) a year and exposing it to both fuel-price and grid-reliability risk. AIF, working with a specialist developer, structured a five-year lease-to-own: the developer designed, built, financed, and installed a captive solar plant on site; Psaltry paid fixed monthly lease payments with a pre-agreed buyout at year five. Within one year of commissioning in March 2025, solar reached



54% of total energy consumption, Scope 1+2 emissions fell 55%, and Psaltry's capacity utilisation and ability to fulfil customer orders both lifted. Alitheia's structure gave a women-led African industrial SME the right to own clean energy without surrendering the capital that keeps it growing.

CH. 3 · LUPIYA · 2025

Financing the Last Mile



Zambia's drought made rain-fed farming a wager. Solar irrigation is the fix — Lupiya put it within reach of the farmers, mostly women, the bank had written off.

Lupiya Financial Services is a Zambian digital lender and a portfolio company of AIF, Alitheia's gender-lens fund. Zambia's 2024/2025 drought exposed what 1.3 million smallholder households already knew: rain-fed agriculture is a wager, not a strategy. Solar-powered irrigation breaks that dependency — but the farmers who needed it most, women smallholders with no land title, no formal credit history, and no collateral, were the ones the financial system had written off. In 2025, Lupiya built a zero-collateral credit-scoring model around the indicators available — roof type, distance to mobile money, farming tenure — and used it to extend solar-irrigation finance across five districts in Zambia's Central and Lusaka Provinces. AIF's capital underpinned the underwriting innovation, the agent-network expansion, and the gender-lens loan book. The chapter develops the strategic question (could a digital lender underwrite clean-energy adoption for the farmer the bank ignores, profitably?), the four pillars (credit design, consortium design, gender design, evidence design), and the outcomes: 135 solar pumps deployed against a 130 target, 57 first-time borrowers onboarded, 70+ farmers trained in climate-smart agriculture and financial literacy, five districts activated — and a borrower registry now ready to be scaled by Amplify across Sub-Saharan Africa.

CH. 4 · HINCKLEY · 2026

Cold Chain, Clean Power



How Hinckley proved that battery storage cuts electricity costs for small commercial operators in West Africa — with receipts.

Hinckley is a Nigerian circular-economy operator and a portfolio company of uMunthu Fund II, a fund comanged by Alitheia Capital and Goodwell Investments. In January 2026, Hinckley deployed second-life battery packs — recovered and reassembled from discarded lithium and lead batteries — at a FanMilk distributor outlet in Accra, Ghana. FanMilk is one of West Africa's largest dairy and frozen-dessert brands, and the Accra distributor is one node in a cold-chain network that determines whether product reaches the customer in the state the brand promises. The facility runs eleven refrigerators continuously and was buying GHC 1,000 of electricity every nine days before the install. Across the 59-day evaluation period, electricity purchases fell from an expected seven to five — a 40% saving — with only six of the eleven refrigerators connected. Every purchase record, before and after, is receipt-verified. The context matters: globally elevated diesel prices and Ghanaian electricity rationing have turned energy cost from an operating line item into an existential one for the small distributors who anchor the last mile. The chapter develops the case that commercially viable clean-energy storage can be designed, installed, and measured at small commercial scale across West Africa's retail cold chain — and that receipts are the most persuasive argument in development finance.

01

Fourteen Years Ahead

How Alitheia's Clean Cooking Fund wrote the climate–gender–capital playbook before the world was ready.

HOW TO READ THIS CASE

- 1 · Executive summary
- 2 · The setting
- 3 · The diagnosis
- 4 · Strategic question
- 5 · Pillar 1 — Product
- 6 · Pillar 2 — Infrastructure
- 7 · Pillar 3 — Finance
- 8 · Pillar 4 — Women as agents
- 9 · By the numbers
- 10 · The UN proof point
- 11 · The read-across
- 12 · Lessons that travel
- 13 · What's next
- 14 · Endnotes & sources

Alitheia's conviction that dirty fuels are a solvable investment problem is now a global policy consensus

For nearly two decades, Alitheia capital has held a consistent conviction: that investing in Africa's health, livelihoods and inclusive growth is not a trade-off against returns — it is the thesis. The Clean Cooking Fuel Initiative (CCFI), co-structured by Alitheia and Oando in 2012, is one of the earliest and clearest expressions of that conviction.

At the time, 95% of Nigerian households depended on firewood, charcoal, or kerosene. The human cost — in respiratory illness, time lost by women and girls, deforestation, and suppressed household productivity — was enormous and largely invisible to mainstream capital markets. Alitheia saw it differently. Working with Oando, the team designed CCFI around women's realities as primary household energy decision-makers: introducing affordable 3kg LPG cylinders, building an end-to-end supply chain, and structuring a wholesale financing vehicle that channeled capital through microfinance institutions to last-mile entrepreneurs and households

By April 2015, CCFI had reached 200,000 households, distributed more than 50,000 cylinders, disbursed \$1.3 million in financing, and empowered women — who made up 95.2% of loan beneficiaries — as both users and entrepreneurs, avoiding an estimated 306,000 tCO₂e in the process.

In November 2013, while CCFI was still in deployment, Tokunboh Ishmael presented Alitheia's thesis at a special joint meeting of the United Nations Economic and Social Council and the General Assembly's Second Committee in New York — publicly framing clean cooking as an investable development solution, a convergence of health, gender inclusion, climate, affordability and private capital, long before that framing entered mainstream climate-finance language.

CCFI was not an opportunistic bet. It was one point on a long arc. Today, as Alitheia prepares to launch Amplify — its next-generation fund, continuing this commitment to impact, inclusive growth and shared prosperity — the CCFI experience offers a working blueprint for what patient, vision-led investing can unlock: LPG penetration in Nigeria has grown from under 1% in 2012 to 24%, reaching 12 million households. The lessons — that finance is catalytic; that infrastructure must match affordability; that women must be central to design and delivery — remain as urgent as ever, and they are embedded in how Alitheia invests.



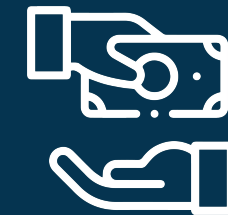
200K

households by
April 2015



\$1.3M

financing
disbursed



95.2%

women loan
beneficiaries



306K

tCO₂e
avoided

“

CCFI was not an opportunistic bet. It was proof, fourteen years early, that health, livelihoods, and returns belong in the same sentence.

”

In 2012, less than 1% of Nigerian households used LPG. The cost of that was paid in lives, hours, and forests.

Nigeria's cooking energy landscape, before 2012, had been dominated by traditional fuels. Out of more than 155 million people and 30 million households, approximately 74% depended on fuelwood or charcoal, while another 25% relied on kerosene. LPG penetration was below 1% nationally, with uptake largely restricted to higher-income urban households in Lagos and Ogun.

Cultural practices reinforced this reliance on biomass. Nigerian diets are dominated by foods such as soups, stews, and cassava meals that require long cooking times and large pots.

Even urban families that occasionally used LPG often reverted to fuelwood for festivals and large gatherings, where food preparation is prolonged and energy intensive.

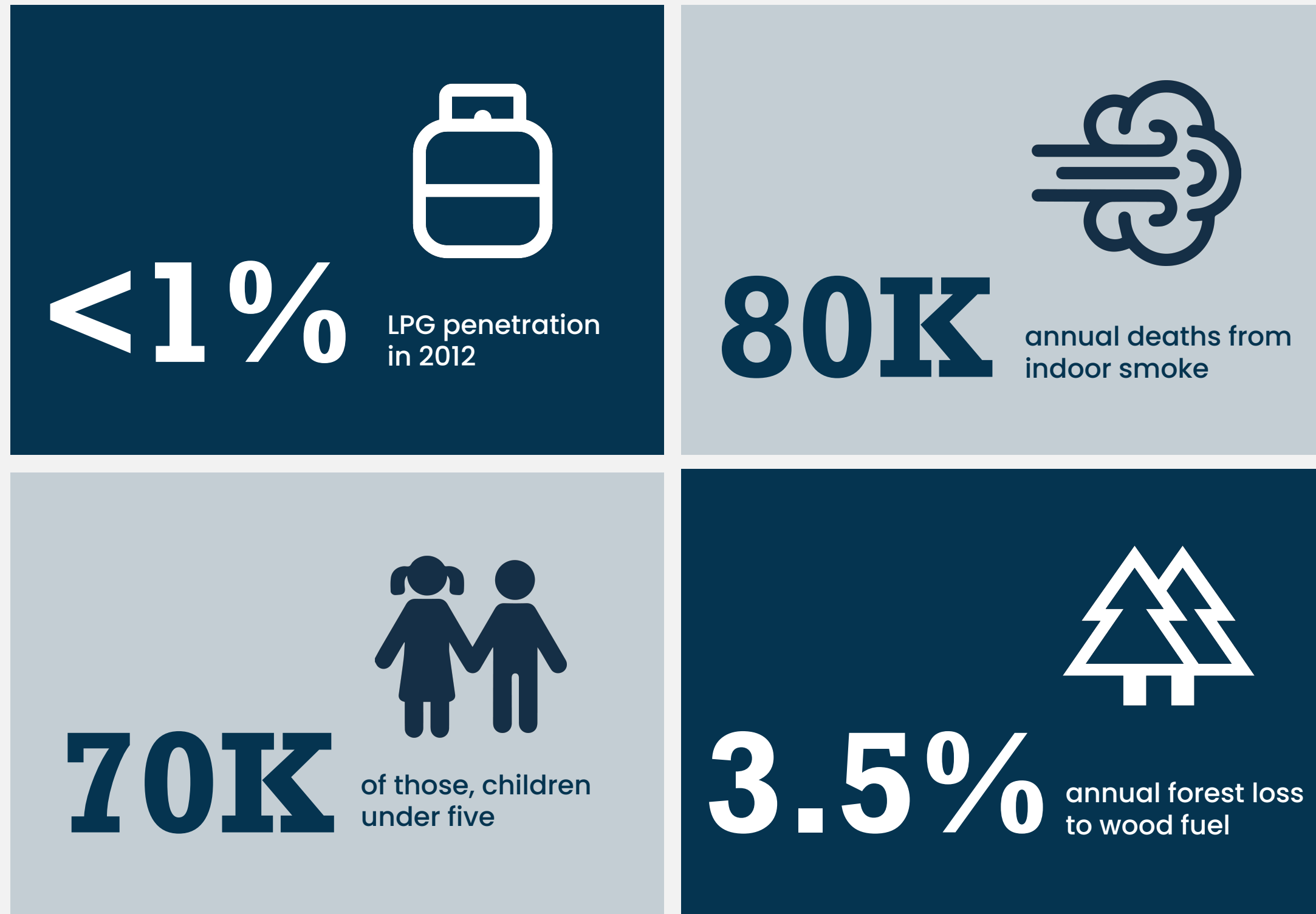
HEALTH · THE SILENT KILLER

Indoor air pollution accounted for nearly 80,000 deaths annually, equivalent to around 3.8% of Nigeria's total disease burden. Within this toll, 70,000 were children under five suffering from acute lower respiratory infections, and 9,000 were adults (mostly women) from chronic obstructive pulmonary disease.



SECTION 2 · THE SETTING — NIGERIA'S SILENT CRISIS

EXHIBIT 2.1 · THE COST OF INACTON – THREE DIMENSIONS



GENDER · HOURS, EDUCATION, DIGNITY

Women and girls bore the responsibility of fetching firewood, walking long distances daily. This was time that could have been devoted to education, income, or other empowerment. Beyond the drudgery, they faced the daily hazard of inhaling smoke from firewood and kerosene stoves, exposing them to respiratory disease, eye problems, and long-term health complications.

ENVIRONMENT · FORESTS & DROUGHT

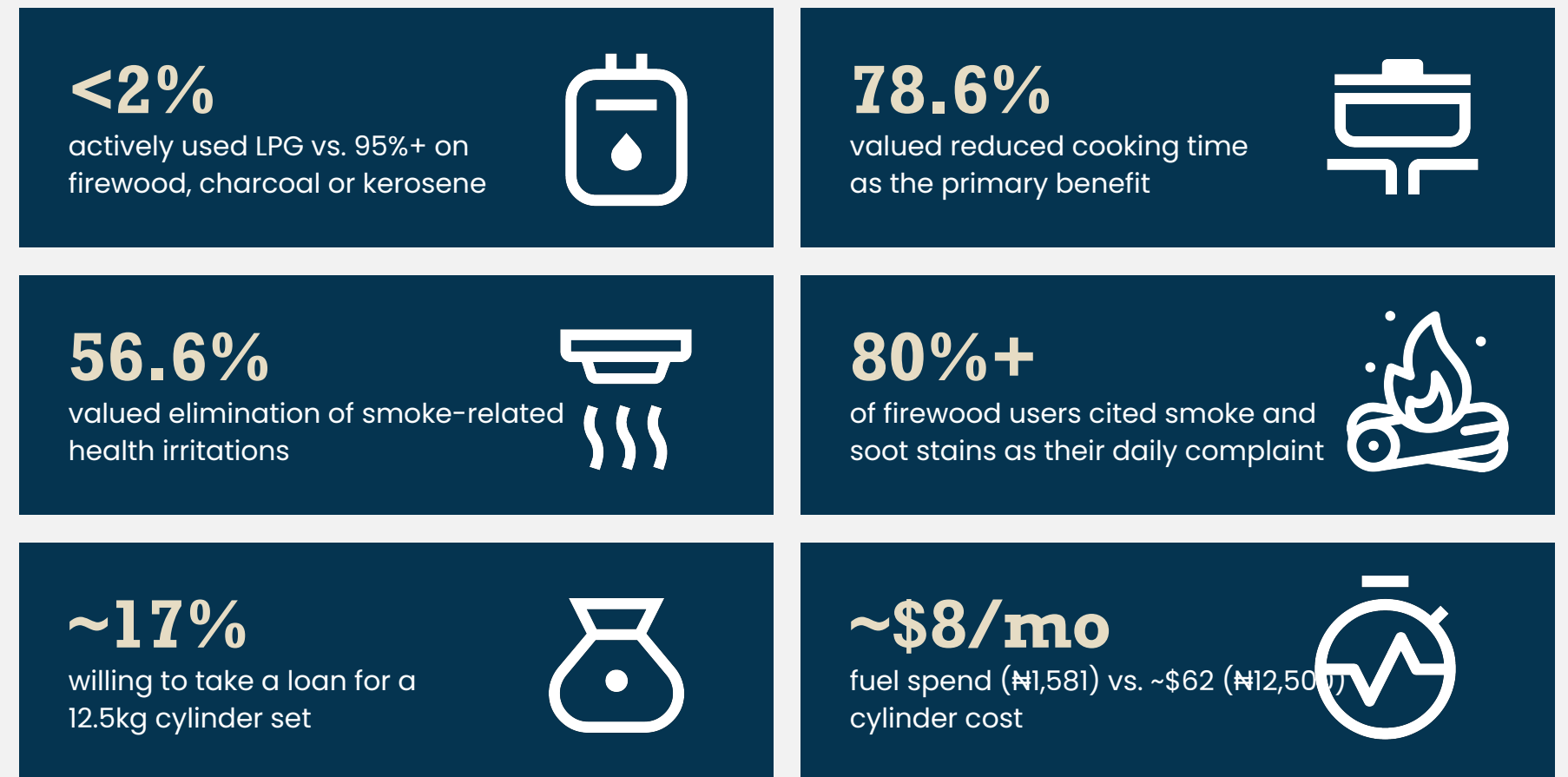
Nigeria has one of the world's fastest rates of forest loss, with a deforestation rate of 3.5% annually. The widespread use of firewood for cooking is a major driver, accelerating desertification in Northern Nigeria and deepening climate-induced drought. The convergence of drought, deforestation, and desertification have already begun to exacerbate pre-existing social stresses, contributing to conflict and displacement of communities.

Under 2% of households used LPG — but 78.6% wanted to switch. The barrier was structural, not cultural.

In 2011–2012, the Alitheia and Oando team commissioned Market Research Consultancy (MRC), an independent Nigerian firm, to conduct a household survey of more than 2,100 respondents across 18 states. The brief was simple: understand why clean cooking adoption had stalled in Nigeria and identify what (if anything) would unlock it.

The findings reframed the strategy. Less than 2% of households used LPG. But the overwhelming majority wanted to. They named cleaner kitchens, faster cooking, and child safety as the reasons. The barrier was not awareness. The barrier was not cultural conservatism. The barrier was structural, defined by three specific gaps: unit size, distance, and cash flow.

EXHIBIT 3.1 · WHAT 2,100 HOUSEHOLDS SAID ABOUT LPG



Source: MRC household survey commissioned by Alitheia / Oando, 2012 (n=2,100 across 18 states).



“

The barrier wasn't culture. It was unit size, distance, and cash flow.

”

WHY THE DIAGNOSIS MATTERED

The survey did three things at once. It dispelled the assumption — common among policymakers and donors at the time — that low-income households were reluctant to adopt modern fuels for cultural reasons. It identified the specific economic constraints that locked households out: an upfront cost roughly eight times their monthly fuel spend, a refill point hours away, and a payment cadence at odds with daily and weekly income flows. And it surfaced a gendered insight: women were not passive beneficiaries. They were the primary decision-makers on cooking fuel, the primary victims of indoor smoke, and the primary stakeholders in any switch.

This reframing changed what CCFI had to design. Not the message, but the unit, the distance, and the cash flow. A smaller cylinder. Closer refill points. Smaller, more frequent payments. Each of the four pillars that follow addresses one dimension of that structural gap.

If LPG was the only fuel that could scale fast enough, why hadn't it?

In 2012, the global clean cooking debate looked much like it does today. Five pathways competed for attention: ethanol, biogas, electric, advanced biomass, and LPG. Each had constraints. Ethanol and biogas could not yet scale supply. Electric cooking was defeated by Nigeria's grid — per-capita consumption sat below most regional peers. Biomass alternatives still hurt women's lungs.

Alitheia and Oando, a founding member of the 2011 Nigerian Alliance for Clean Cookstoves, concluded that LPG was the only option that could displace kerosene and biomass at speed. But the conventional 12.5kg cylinder cost about \$62 to acquire, against monthly fuel spend of \$8 per household. Adoption was below 1%. The diagnosis from the MRC survey had told the team why. The strategic question was what to do about it.

FIVE PATHWAYS COMPETED — EACH CONSTRAINED

Ethanol & biogas	could not yet scale supply
Electric cooking	defeated by Nigeria's grid
Advanced biomass	still hurt women's lungs
LPG	only fuel that could displace at speed

THE TWO QUESTIONS THAT FRAMED CCFI

- 1** Would households at the bottom of the pyramid adopt LPG if it were truly accessible?
- 2** Could a smaller 3kg cylinder — sold the way she already buys — unlock the affordability barrier?

The answers to these two questions defined the four design choices that follow. *The diagnosis told the team what was wrong. The strategic question forced them to choose what to build.*

Designing a 3kg cylinder around women — not around engineering convenience

A persistent debate in clean cooking has centred on whether to position LPG as a transitional fuel or to leapfrog directly to renewables. CCFI took a pragmatic view: LPG was the only immediately scalable solution capable of displacing kerosene and biomass at speed in Nigeria. The harder question was unit design.

The MRC survey had already revealed the answer in outline. Women bought fuel in small, frequent units — most within ten minutes of home. The upfront cost of a 12.5kg cylinder and stove (~\$62) was nearly eight months of household fuel spend. Few households could save for such a purchase, and only 17% would accept a loan to do so. The product had to change.

EXHIBIT 5.1 · THE 3KG CYLINDER, BY DESIGN

- ↗ Smaller cylinder, lower capital outlay — fits weekly cash flow.
- ↗ Integrated stove-burner hub — no extra accessories, lower safety risk.
- ↗ Reduced physical strain — designed for women's daily handling.
- ↗ Matches frequent, small-purchase shopping habits.
- ↗ Brand and safety language tested with female users in Lagos, Ogun & Oyo.

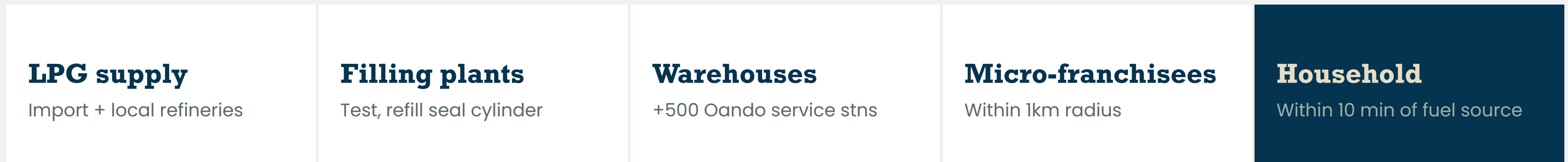
The 3kg unit lowered both upfront and refill costs, aligned with women's shopping patterns of frequent small purchases, and reduced the physical strain of handling heavier 12.5kg cylinders. The plug-and-play design eliminated the need for additional accessories, reducing risk and inconvenience. By listening to women as end-users and decision-makers, CCFI ensured product innovation directly addressed the realities of its target market.

This pragmatic choice anticipated the direction of national clean cooking policy more than a decade later, establishing LPG as the backbone of Nigeria's clean cooking transition.

An end-to-end supply chain, built from scratch a decade before policy caught up

A persistent global debate is the gap between ambitious clean cooking targets and actual implementation. In Nigeria, this was evident in both infrastructure bottlenecks and the absence of a coherent national policy framework. CCFI’s answer was to build the missing supply chain itself.

EXHIBIT 6.1 CCFI’S END-TO-END SUPPLY CHAIN — BUILT FROM SCRATCH



Source: Alitheia / Oando CCFI design documents, 2012–2015.

Securing reliable supply.

The plan began with firm purchase agreements for 3,200 MT/month of LPG, combining allocations from local refineries with “take-or-pay” import contracts at Apapa. Oando also invested in proprietary import and storage facilities to increase resilience.

Transport and logistics.

Bulk LPG was transported via a fleet of trucks scaling from twenty in year one, while dry cargo trucks moved filled cylinders from plants to warehouses and retailers. The dual system created a predictable logistics backbone for consistent supply.

Filling plants.

At the heart of distribution were LPG filling plants, where cylinders were tested, refurbished, refilled, and sealed before reaching consumers. Beginning with seven proprietary plants across Nigeria, the plan expanded through franchised and in-station plants.

Warehouses and secondary distribution.

Fourteen warehouses and over 500 Oando service stations provided secure storage and acted as cylinder exchange hubs within reasonable distances of households. This ensured consumers, especially in peri-urban and rural areas, had nearby access to refills, dramatically reducing the distance and time spent acquiring fuel.



Last-mile — micro-franchisees.

Market research showed 72% of target households purchased fuel within ten minutes of home. To meet this expectation, microfinance partners recruited and financed micro-franchisees — small entrepreneurs who retailed 3kg cylinders within a 1km radius of communities. This deepened penetration and embedded entrepreneurship directly into the supply chain.

Systems and governance.

An integrated IT backbone linked to Oando’s Oracle platform enabled automated order management, SMS-based customer service, and real-time stock monitoring. Staffing expanded across supervisors, customer service, and IT teams to ensure governance and scalability.

CCFI’s end-to-end supply chain provided a reliable, accessible LPG backbone, and demonstrated the importance of physical and institutional infrastructure to inclusive clean cooking. This model influenced Sustainable Energy for All (SE4All), the Green Climate Fund, the Clean Cooking Alliance, the World Bank’s ESMAP Multi-Tier Framework, the Africa Clean Energy Programme, the UN SDGs 7 and 5, Nigeria’s NDCs, and ultimately the articulation of the 2024 National Clean Cooking Policy.

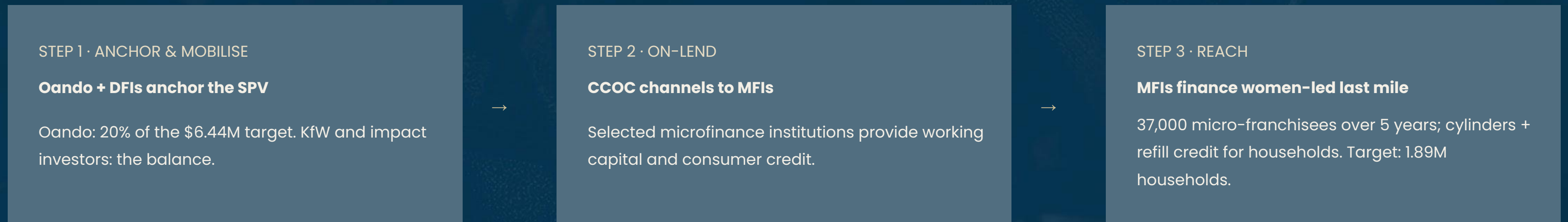
A wholesale on-lending vehicle (CCOC) that turned \$1.3M into reach for 200,000 households

The global push for universal clean cooking raises a critical question: how can it be funded at scale? It was against this backdrop that CCFI was launched. At its core was an innovative financing structure designed to unlock clean cooking access for millions of low-income households.

Alitheia Capital, working with Oando PLC and development

partners, created the Clean Cooking-Fuel On-lending Company (CCOC), a wholesale financing vehicle that channeled capital through commercial intermediaries. The aim was to reach 1.89 million households within five years by delivering a comprehensive supply and financing solution for bottom-of-the-pyramid (BOP) families.

EXHIBIT 7.1 HOW CCOC MOVED CAPITAL – THE FINICIAL CHAIN



Market research had shown two hard truths. First, that adoption required products to be affordable at the point of purchase. Second, that distribution needed to reach within reasonable distances of households, matching the proximity of traditional firewood or kerosene sellers.

Meeting this demand meant mobilising tens of thousands of micro-entrepreneurs over five years, each requiring working capital for cylinders, stoves, and supply chain participation. Without finance, this scale of distribution would have been impossible.

“
This was blended finance before “blended finance” was a slide.
”

Women weren't beneficiaries — they were the distribution model

Long before global discourse spotlighted women as both the primary victims of household air pollution and key drivers of the clean energy value chain, Alitheia built this perspective into CCFI. Women were not just beneficiaries — they were recognised as decision-makers, entrepreneurs, and distributors, whose choices would shape adoption.



WOMEN AS DRIVERS OF ADOPTION.

Crucially, the research surfaced a gendered insight: women were not passive beneficiaries but the primary decision-makers on cooking fuel adoption. They carried the dual burdens of managing household fuel shortages and inhaling smoke, which gave them a direct stake in the transition. Their preferences for affordability, portability, and safety shaped the design of the CCFI's 3kg cylinder with integrated stove hub.

TIME POVERTY.

5 hrs/day

Reliance on firewood and charcoal imposed crushing time costs — up to five hours a day spent gathering and preparing fuel, a burden shouldered disproportionately by women and girls. The introduction of smaller 3kg LPG cylinders, sold and refilled through local micro-franchisees, drastically reduced this time poverty.

HEALTH AND HOUSEHOLD BURDENS.

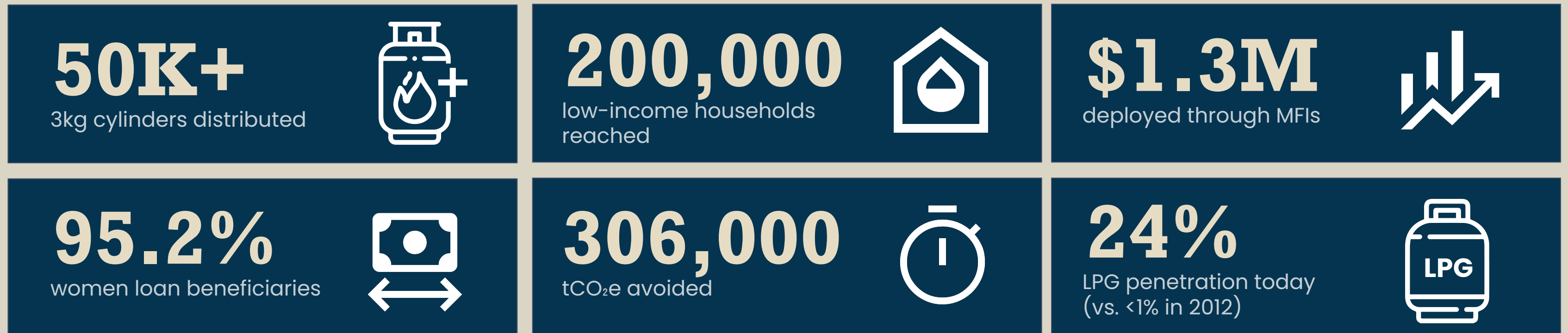
Firewood and charcoal users reported high levels of smoke and eye irritation, while kerosene caused respiratory discomfort and still left cooking spaces polluted. Over 80% of households cited smoke and stains from firewood, while LPG was perceived as almost entirely free of health effects or staining. For women, who bore the daily burden of cooking in smoke-filled kitchens, LPG was a cleaner, healthier alternative that reduced drudgery and enhanced dignity.

AGENCY & ECONOMIC EMPOWERMENT

Beyond adoption, CCFI embedded women into the value chain itself. Through microfinance partnerships, women became micro-franchisees, running last-mile LPG retail businesses in their communities. This repositioned women not only as consumers but as active entrepreneurs in Nigeria's clean energy transition, anticipating today's global recognition of women as agents of change in the energy sector.

Five years in, CCFI had reached 200,000 households, mobilised \$1.3M, and avoided 306,000 tCO₂e — with women at 95% of borrowers

EXHIBIT 9.1 CCFI OUTCOMES – TO APRIL 2015



Source: CCFI programme data, 2015; PPPRA / NMDPRA 2024 report.

The UN proof point: taking the clean-cooking thesis to New York in 2013.

In November 2013, Tokunboh Ishmael was invited to speak at a special joint meeting of ECOSOC and the Second Committee at UN Headquarters, convened under the theme, ‘Finding solutions for addressing sustainable development challenges and accelerating the achievement of the Millennium Development Goals.’ The timing matters. CCFI was not a retrospective climate story; it was an active investment thesis being tested in real time and placed before a global policy audience while the Millennium Development Goals were still the dominant development framework.

The intervention positioned clean cooking as more than a household-technology problem. It was framed as a market-building opportunity that could deliver financial returns and measurable development outcomes when product design, affordability, supply-chain infrastructure and last-mile finance were built around the lives of low-income women. That is the same architecture this case study now documents: a smaller 3kg cylinder, proximate refill points, microfinance-enabled distribution, and women as the adoption engine.

For the case study, this UN record is important because it establishes Alitheia’s clean-energy work as early, public and policy-relevant. Fourteen years before clean cooking became a mainstream climate-finance priority, Alitheia was already arguing that private capital could help solve the health, gender and environmental costs of dirty cooking – provided the economics were redesigned around the user.

EXHIBIT 10.1 · WHAT THE 2013 UN INVENTION PUT ON RECORD

PUBLIC STAGE	Special Joint Meeting of ECOSOC and the Second Committee, UN Headquarters, New York, 6 November 2013.
Investment THESIS	impact investors can pursue both financial and social returns when capital is structured around real development constraints.
CLEAN COOKING THESIS	cleaner household energy improves health, reduces women’s time burden, protects children and creates investable last-mile markets.
POLICY RELEVANCE	the argument anticipated the SDG 5 / SDG 7 intersection and the later positioning of clean cooking as a climate, gender and development-finance priority.

Source: UN Meetings Coverage GA/EF/3384; ECOSOC / Second Committee note & flyer, 6 Nov 2013; ECOSOC Report for 2013.

CCFI design choices — and the global frameworks they anticipated

CCFI did not operate in isolation. Its design choices anticipated, and in several places directly informed, the architecture of global clean cooking frameworks and Nigeria’s evolving national policy.

EXHIBIT 11.1 · CCFI DESIGN CHOICES AND WHAT THEY ANTICIPATED

CCFI DESIGN CHOICE	WHAT IT ANTICIPATED
Wholesale on-lending vehicle (CCOC)	SE4All blended-finance frameworks; GCF readiness facilities; CCA Catalytic Capital working group.
3kg cylinder + integrated stove for BOP	World Bank ESMAP Multi-Tier Framework Tier-3+; Nigeria 2024 National Clean Cooking Policy; CCA fuel-stacking guidance.
End-to-end supply chain	SE4All infrastructure pillar; Africa Clean Energy Programme; Nigeria Gas Master Plan implementation lessons.
Women micro-franchisees as distributors	UN SDG 5 & 7 recognition; CCA gender lens; IFC 2X criteria; gender-lens investing principles (GLI 2.0).
Carbon credit monetisation pathway	Verra clean cookstove methodology evolution; Article 6 cooperative approaches; voluntary carbon market integrity initiatives.

Source: Alitheia synthesis, cross-referenced to SE4All, GCF, CCA, World Bank ESMAP, Nigeria FMP / NMDPRA.

Six transferable principles for capital, policy, and partners

01

Finance is catalytic.

CCFI proved that affordability, not cultural resistance, was the barrier to adoption. Consumer and distributor finance remain central to scaling. Catalytic capital should target the missing middle of the financing chain — wholesale to MFIs, MFIs to last-mile entrepreneurs, last-mile to households.

03

Policy coherence drives scale.

Fragmentation in 2012 hindered progress. Nigeria's subsequent Gas Policy, NDCs, and 2024 Clean Cooking Policy provided the coherence needed for acceleration. Where policy is fragmented, capital must move first and then inform policy.

05

Clean cooking is a climate solution.

Black carbon, deforestation, and household emissions belong in NDCs and carbon markets. Positioning clean cooking as a climate asset elevates its role in global climate finance flows.

02

Infrastructure must match finance.

Cylinder scarcity, depot gaps, and fragmented retail can defeat the best loan product. Hardware and finance must move together. CCFI's end-to-end supply chain investment is the precondition for any consumer credit programme to scale.

04

Women at the centre, by design.

Adoption is fastest when women are positioned as entrepreneurs, distributors, and decision-makers; gender lens is the operating model, not the side note. CCFI's 95% female loan beneficiary share is the proof point.

06

Vision precedes the market.

CCFI was built when clean cooking had no mainstream capital audience. Patient, conviction-led investing is what creates the conditions for scale. The fund that backs the next CCFI needs to exist before the world agrees it should.

The Amplify Fund carries this thesis forward, and LCAW is where Alitheia is asking partners to join the next chapter

Sub Saharan African countries such as Ghana, Kenya, Tanzania, and Ethiopia face conditions strikingly similar to Nigeria's in 2012: dependence on biomass, limited LPG infrastructure, weak last-mile finance, and women bearing the cost. The CCFI blueprint is directly transferable – with adaptations to fuel mix (electric and bioethanol play larger roles in some markets), policy environment, and capital availability.

The IEA estimates sub-Saharan Africa needs around \$4 billion a year to deliver universal clean cooking by 2030. Current flows are a fraction of that. CCFI shows that the unit economics work when blended catalytic capital is paired with infrastructure investment and policy coherence. Alitheia's Amplify Fund is the institutional expression of that thesis: a continuation of two decades of impact and gender-lens investing, not a response to a trend. For partners seeking to put capital to work in this space, Amplify is the vehicle.

\$4bn/yr

needed for universal clean cooking in SSA by 2030 (IEA) – current flows are a fraction.

FOR CAPITAL ALLOCATORS

Engage with Amplify to deploy in proven clean-energy and inclusive-growth markets across Africa.

FOR POLICYMAKERS

Pair finance with infrastructure, standards, and import facilitation – the three together, never alone.

FOR PARTNERS

Treat women as the distribution model, not the beneficiary list. Design with them, employ them, underwrite them.

“
The blueprint is ready. The capital is the missing variable.
”

Methodology, data provenance, and further reading

PROGRAMME DATA

Alitheia / Oando CCFI programme data, 2012–2015 – cylinders distributed, households reached, MFI disbursements, women loan beneficiary share, tCO₂e avoided.

MRC household survey commissioned by Alitheia / Oando, 2012 (n=2,100 households across 18 states).

Nigerian Alliance for Clean Cookstoves founding documents, 2011.

PUBLIC DATA & FRAMEWORKS

World Health Organization – household air pollution mortality estimates, Nigeria.

Food and Agriculture Organization (FAO) and Global Forest Watch – Nigeria deforestation data, 2000–2024.

International Energy Agency – Africa Energy Outlook (clean cooking financing gap, pathway projections).

World Bank ESMAP – Multi-Tier Framework for cooking energy access.

Sustainable Energy for All (SE4All) – annual reports.

Clean Cooking Alliance (CCA) – pathway and gender frameworks.

Government of Nigeria – National Clean Cooking Policy, 2024.

PPPRA / NMDPRA – Nigerian LPG penetration and consumption reports, 2015–2024.

United Nations Meetings Coverage and Press Releases – GA/EF/3384, “Investors Can Have Both Financial, Social Returns, Says Business Leader as Second Committee Discusses Sustainable Development Challenges,” 6 November 2013.

United Nations ECOSOC / General Assembly Second Committee – Special Joint Meeting event flyer and concept note, “Finding solutions for addressing sustainable development challenges and accelerating the achievement of the Millennium Development Goals,” 6 November 2013.

Report of the Economic and Social Council for 2013, A/68/3/Rev.1 – reference to the 6 November 2013 joint meeting proceedings.

METHODOLOGY NOTES

All figures cited in this case study reflect Alitheia / Oando programme data as of April 2015 unless otherwise stated. tCO₂e avoidance is calculated using CCA-aligned displacement methodology – substitution of firewood, charcoal, and kerosene baselines by 3kg LPG cylinder usage, adjusted for fuel-stacking. Household reach figures reflect cumulative distinct households served by the programme. This case study is built entirely on documented programme data, the MRC household survey, United Nations public records, and publicly sourced datasets. No reconstructed scenes or attributed personal quotes are used.



02

Powering the Pivot

How Psaltry rewrote industrial decarbonisation for African manufacturing.

HOW TO READ THIS CASE

- 1 · Executive summary
- 2 · The setting
- 3 · The diagnosis
- 4 · Strategic question
- 5 · Pillar 1 — Energy strategy
- 6 · Pillar 2 — Capital structure
- 7 · Pillar 3 — Operations
- 8 · Pillar 4 — Climate & jobs
- 9 · By the numbers
- 10 · The read-across
- 11 · Lessons that travel
- 12 · What's next
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Alitheia's AIF fund backed a women-led cassava processor to exit diesel entirely, proving that industrial decarbonisation in Africa is a financing problem, not a technology problem

Alitheia's AIF fund was built on a conviction: that women-led African businesses at the intersection of climate and gender are systematically underfinanced, and that correcting that is both the right thing to do and a better investment. Psaltry International is proof.

Psaltry International is a women-led cassava processor in Nigeria and a portfolio company of AIF, Alitheia Capital's gender-lens fund. By 2023, Psaltry's 3,163 MWh annual energy load (sixty per cent grid, forty per cent diesel) was costing the business hundreds of millions of naira a year and exposing it to both fossil-fuel price risk and grid unreliability. A conventional solar capex solution would have transformed the cost base. But the upfront ticket sat squarely on the wrong side of the wall that stops most African industrial SMEs from transitioning.

But the most important number is not the year-one result. It is the post-buyout position: material annual savings from year six onward, on a cost base that is structurally insulated from currency, fuel, and grid risk. The lease was not a savings instrument. It was the price of optionality: the right to own clean energy without surrendering the capital that keeps the business growing. This case argues that this logic is replicable, that it is particularly powerful for women-led industrial SMEs, and that building the financing architecture to make it routine is exactly what Alitheia's Amplify Fund is designed to do.

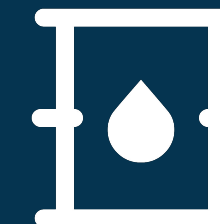
The transaction Psaltry executed was a five-year lease-to-own. A specialist developer designed, built, financed, and installed a captive solar plant on Psaltry's site. Psaltry committed to fixed monthly lease payments, preserving working capital for the core business, with a pre-agreed buyout at the end of year five. At commissioning in March 2025, solar reached 54 per cent of total energy consumption. Diesel fell 83 per cent. Total Scope 1+2 emissions fell 55 per cent.

“
Psaltry was not paying for savings. It was paying for the right to own clean energy. The savings compound for a decade.
 ”



54%

solar share at commissioning



-83%

diesel displaced



-55%

Scope 1+2 emissions

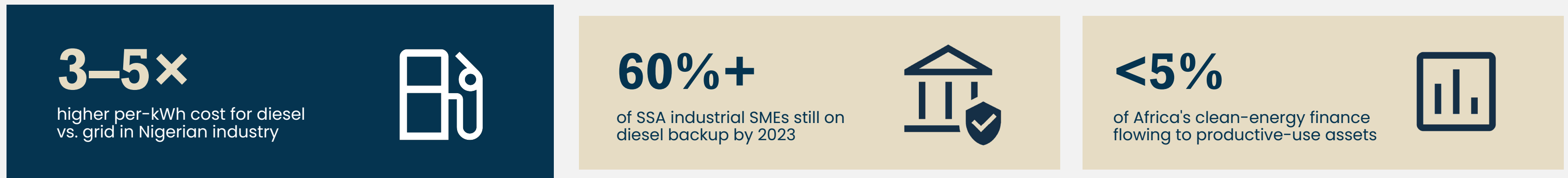


3,163

MWh annual load

Africa's industrial energy transition stalls at the same place household transitions do: at the wall of upfront capital.

EXHIBIT 2.1 THE ENERGY COST PENALTY ON AFRICAN INDUSTRIAL SMES



Source: IEA Africa Energy Outlook 2023; GOGLA productive-use solar market report 2023; Alitheia / Psaltry ESG KPI workbook 2023.

THE SCALE PROBLEM

The global clean-energy conversation in Africa has run on two tracks: household (cookstoves, lanterns, mini-grids) and utility (IPP-scale solar, grid additions). Both tracks matter, however, they leave a structural blind spot in the middle of the economy: the small- and mid-sized industrial operators that process the continent's primary produce into food, materials, and finished goods. These are the businesses that consume the most expensive electricity on the continent, emit because they have no alternative, and are disproportionately led or owned by women.

THE CAPITAL PROBLEM

Industrial SMEs that run on diesel face per-kWh energy costs several multiples of utility tariffs. They carry a fossil-fuel hedge cost on every product they sell. They cannot decarbonise without rebuilding their cost structure. And the capital stack that would make an industrial solar transition routine — DFI-anchored leasing platforms, gender-lens equity, developer balance-sheet guarantees — does not yet exist as a market product.

THE GENDER DIMENSION

The capex wall is taller for women-led industrial SMEs: thinner collateral pools, harder access to formal credit, weaker representation in supplier and DFI networks, and gendered assumptions in commercial underwriting. The capex barrier that stops a male-led SME stops a women-led SME earlier and harder. This is the operative reason that climate capital and gender-lens capital, despite running adjacent, almost never meet — even though the businesses at their intersection are exactly where both would perform strongest

The solar case was overwhelming; the financing structure made it unreachable. So separate the asset from the capital to own it.

EXHIBIT 3.1 · WHAT THE ENERGY AUDIT REVEALED : PSALTRY 2023



Source: Psaltry energy audit, Alitheia value creation team, 2023; Psaltry 2025 ESG KPI workbook; lease contract terms.

The audit reframed the problem. The solar case was not in doubt; the numbers were unambiguous. What was in doubt was whether a profitable, growing business could absorb a multi-million-dollar capex commitment without strangling the working capital it needed to run. It could not. The barrier was structural, not economic.

The lease-to-own structure dissolved the barrier by separating two things that conventional project finance keeps bundled: the right to use the asset and the right to own it. During the lease, Psaltry paid for the first, a fixed monthly commitment that fit within the existing operating cost envelope. At buyout, it acquired the second — at a contractually fixed price that the audit had modelled three years in advance. The optionality was priced from day one. The savings were deferred by design.

“

The barrier was not economic. It was structural. The lease structure dissolved it by separating the right to use the asset from the right to own it.

”

Could a Nigerian agri-processor profitably exit diesel without a single dollar of upfront capex?

The energy audit had resolved the economics. A captive solar plant delivered per-kWh costs at a fraction of grid and diesel alternatives. The numbers were not close. But the conventional path to that asset — raise capex, take on debt, fund the installation — would have consumed working capital that Pсалtry needed to grow its core business. The strategic question was not whether to transition. It was how to structure the transition so the company could do both simultaneously.

THE TWO QUESTIONS

- 1** Could a lease-to-own fund the solar asset entirely off the developer's balance sheet, leaving working capital intact?
- 2** Was the optionality value of a fixed five-year buyout large enough to justify the lease premium over direct ownership?

The diagnosis said the economics were right. The strategic question forced a structure that made the timing right too. Four pillars defined the answer.



Industrial energy strategy: on-site solar is the right choice for the right reasons.

Not all industrial operators face the same energy equation. Psaltry's was unusually clear: a stable, high-volume baseload; a site with strong solar resource; grid that was expensive and unreliable; and diesel at a per-kWh cost far above the lease payment. The analysis validated on-site captive solar before any financing structure was explored.

Psaltry's 3,163 MWh annual load profile had three features that made captive solar the correct technical choice. First, the load was consistent and predictable — cassava processing runs on a defined production cycle, which meant the solar plant could be sized with high confidence. Second, the site's location gave access to strong irradiance and sufficient roof or ground area. Third, diesel was not a cheap hedge; at the per-litre prices Psaltry was paying, diesel electricity cost twenty-three times the projected post-buyout solar rate. The energy strategy pillar settled the technology question before the capital question arose.

LOAD PROFILE ANALYSIS

The audit documented a 60/40 grid-to-diesel split, with diesel concentrated on production days when grid was unavailable. The solar plant was sized at 54 per cent of total load — a deliberately conservative design that kept grid and a residual diesel reserve as backup without over-specing the primary asset.

RELIABILITY & PAYBACK

Grid reliability in Psaltry's location had been declining, an accelerating trend in Nigerian industrial zones. The solar plant's Year 1 uptime performance validated the sizing logic: solar covered its projected share from commissioning, with diesel relegated to emergency backup only.



Capital structure: Alitheia and the developer structured a lease that made the transition possible without a balance sheet trade-off.

The lease-to-own was not a standard PPA. It was a structured transaction with specific terms designed to make the buyout option economically dominant — and to ensure Psaltry's working capital position was protected across the full sixty-month lease cycle.

The developer designed, built, financed, and installed the captive solar plant on Psaltry's site, carrying the asset on its own balance sheet for the duration of the lease. Psaltry committed to a fixed monthly lease payment for sixty months, with a pre-agreed year-five buyout option (and a year-ten alternative). Alitheia's board-level involvement across the lease cycle made the buyout-timing analysis possible — and the saving from choosing the year-five buyout over the year-ten alternative was quantified before the lease was signed.

The sixty-month lease is denominated in naira, with monthly payments indexed to the NGN/USD rate. This introduces some currency exposure, but it is bounded and predictable: Psaltry knows the USD equivalent it is paying at any point, the buyout price is fixed, and the post-buyout naira savings are large enough that the net position remains favourable across the modelled NGN/USD scenarios.

Tenor

60 months

Buyout

Year 5 (yr-10 alt.)

Currency

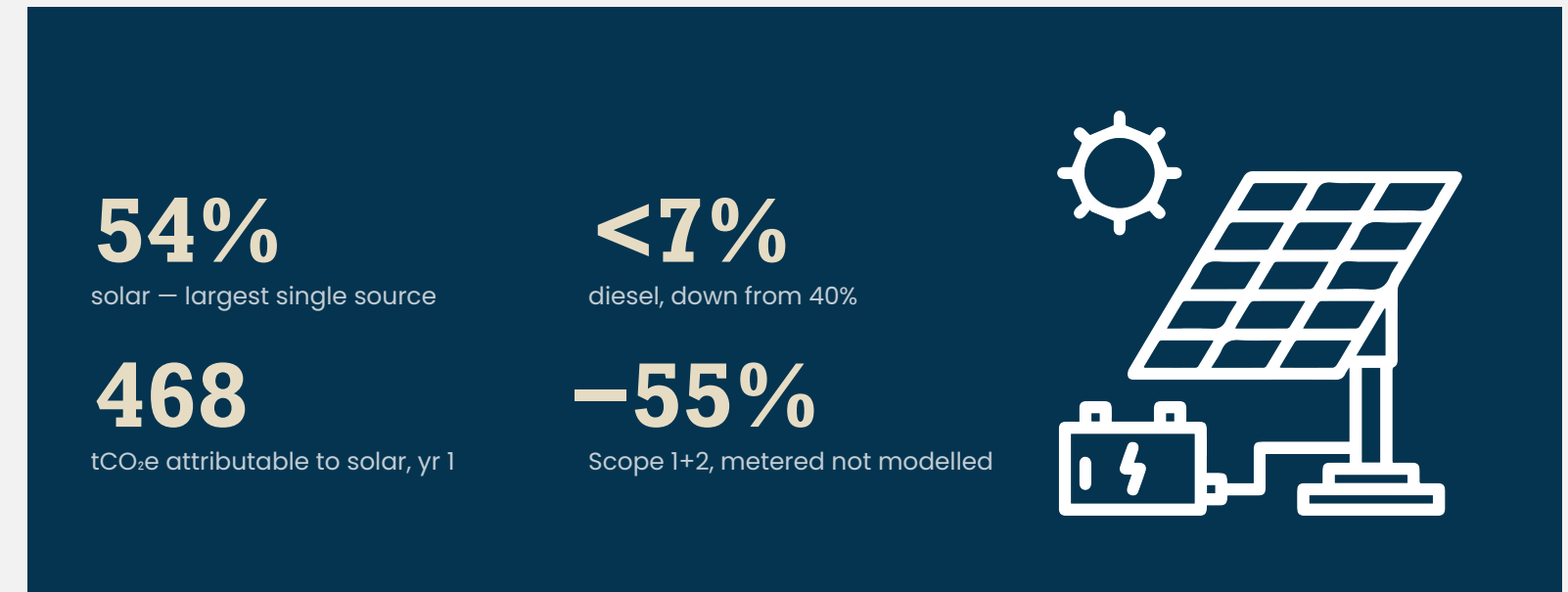
NGN, indexed NGN/USD

Currency exposure is bounded and predictable: the USD equivalent is known, the buyout price is fixed, and post-buyout naira savings keep the net position favourable across modelled scenarios.

Operational integration: the transition changed Psaltry's production economics from day one.

A solar transition is not just a financing event. It is an operational one. Psaltry's management team ran the commissioning, integration, and metering discipline that turned a lease contract into a measured decarbonisation outcome — with data that is carbon-finance-ready from day one.

At commissioning in March 2025, solar reached 54 per cent of Psaltry's energy mix, its largest single source. Diesel fell from 40 per cent to below 7 per cent of total consumption, eliminated as a baseload source and retained only as emergency backup. Total Scope 1+2 emissions fell 55 per cent; 468 tCO₂e was directly attributable to the solar asset in year one. These are not modelled numbers. They are metered, with grid and fuel emission factors anchored to IPCC AR6 and IEA 2024.



UPTIME & THROUGHPUT

Production throughput was maintained across the transition, which was a critical operational constraint. The solar plant's consistent generation profile matched Psaltry's production schedule, which runs on defined processing cycles. There was no production disruption at commissioning.

COST PER TONNE

Energy cost per tonne of cassava processed fell materially in year one. The full cost-per-tonne benefit realises from year six, when the lease payment disappears and the solar asset is fully owned. Alitheia's value creation team is tracking this metric across the remaining lease cycle.

MEASUREMENT DISCIPLINE

Psaltry's metering architecture produces the data that makes this case carbon-finance-ready. Avoided emissions are calculated from metered consumption, grid emission factor (Nigeria 2024), and diesel emission factor (IPCC AR6). The counterfactual is documented. Operators that build this discipline early can monetise the asset twice — as a cost-reduction vehicle and as a carbon-finance counterpart.

The transition is a gender result, a resilience result, and an attribution-ready climate result, and it is what Alitheia's AIF thesis was designed to produce

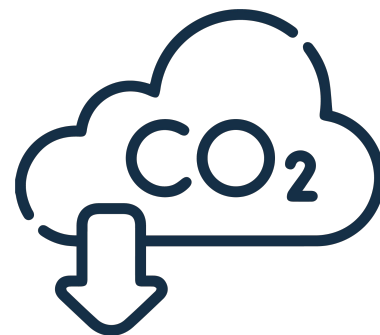
Psaltry's energy transition is not a sustainability programme. It is a board-level capital decision that happens to produce climate, gender, and community results that are measurable, attributable, and durable.

The 591 tCO₂e avoided in year one is not a proxy or a projection. It is a documented measurement from a metered system with verified emission factors. Beyond the climate outcome, the transition strengthens

Psaltry's competitive position — a business structurally insulated from fossil-fuel price shocks can undercut competitors on cost and withstand the macroeconomic volatility that periodically disrupts Nigerian industrial supply chains. And a women-led industrial business that successfully decarbonises rewrites the underwriting prior that women-led industrial SMEs are higher-risk recipients of energy-transition capital.

EMISSIONS AVOIDED

591
tCO₂e in year one



591 tCO₂e avoided in year one: 468 tCO₂e directly attributable to the solar asset (Scope 2 grid displacement) and 123 tCO₂e from Scope 1 diesel elimination. At Psaltry's current production scale, annual avoided emissions post-buyout will compound as diesel use approaches zero.

SUPPLY-CHAIN RESILIENCE



Psaltry supplies cassava starch and derivatives into Nigerian food-manufacturing supply chains. A cost base structurally insulated from diesel price shocks makes Psaltry a more reliable supplier. The transition has supply-chain resilience effects that extend beyond the factory gate.

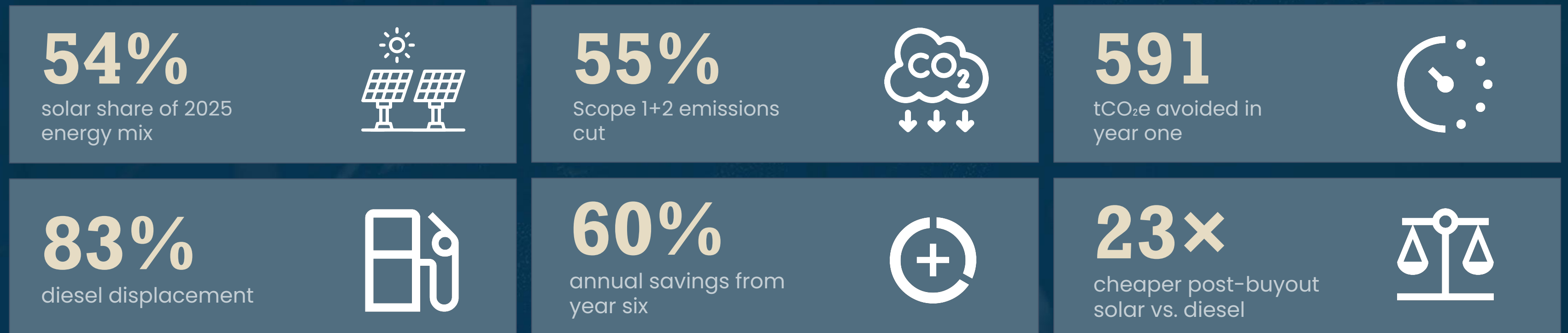
THE GENDER-LENS RESULT



AIF, Alitheia's gender-lens fund, backed Psaltry because women-led industrial businesses at the intersection of climate and gender are systematically under-financed. Psaltry's transition is a data point that the intersection is investable. Every subsequent data point makes the next transaction easier to underwrite.

Year one: –55% emissions cut, 83% diesel displaced, 591 tCO₂ e avoided. Year six onward: material annual savings on a fully owned asset.

EXHIBIT 9.1 PSALTRY TRANSITION OUTCOMES: YEAR ONE AND BEYOND



Source: Psaltry 2025 ESG KPI workbook; lease terms; Alitheia analysis. Emission factors: IPCC AR6; IEA 2024.

The year-one results are instructive but incomplete. The full return on the lease-to-own structure realises from year six, when the asset is owned, the lease payment disappears and the recurring annual saving compounds for a decade on a cost base that is structurally insulated from fossil-fuel price risk.

How Psaltry's structure maps to global frameworks and what it anticipates for the productive-use industrial SME segment.

The Psaltry transaction was designed for one factory. Its design choices, however, anticipate the architecture that global climate-finance frameworks are only beginning to articulate for productive-use industrial SMEs.

EXHIBIT 10.1 · DESIGN CHOICES AND WHAT THEY ANTICIPATED

<p>Lease-to-own for captive industrial solar</p> <p>IEA Africa Energy Outlook 2023 productive-use financing gap; SE4All blended-finance frameworks; GCF productive-use readiness facilities.</p>	<p>Gender-lens equity as the governance layer</p> <p>AIF gender-lens thesis; 2X Challenge productive-use criteria; GIIN IRIS+ gender-lens indicators.</p>	<p>Measurement-grade emissions data from day one</p> <p>IPCC AR6 emission factor protocols; IEA 2024 country grid factors; VCS / Gold Standard productive-use methodology.</p>	<p>Optionality framing — right to own, not immediate savings</p> <p>GOGLA productive-use PAYG and lease frameworks; OPIC / DFC productive-use guarantee structures.</p>	<p>Blended-finance stack for women-led industrial SMEs</p> <p>Convergence blended-finance database; 2X Collaborative mobilisation targets; CPI Climate Finance Tracker productive-use gap.</p>
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The Psaltry case proves that industrial decarbonisation is a financing problem, not a technology problem. The lease-to-own structure solves it.

-
- 01** Stop measuring the lease period by year-one savings.
The year-one net cost position of a lease-to-own is approximately a wash — by design. The return is the optionality value of owning a paid-for asset from year six, compounding for a decade. Evaluators who price only the lease period misprice the asset by a factor that matters.
-
- 02** Productive-use industrial scale is where decarbonisation concentrates.
A single factory-scale transition can avoid hundreds of tonnes of CO₂e per year, produce measurement-grade data, and generate the supply-chain resilience effects that household and utility-scale transitions cannot. The capital stack for this segment is the missing infrastructure.
-
- 03** Climate capital and gender-lens capital perform best at their intersection, and almost never meet there
Women-led industrial SMEs face the steepest capital-access penalties on the continent and sit at the intersection where climate and gender returns would compound most strongly. The Psaltry structure is proof that the intersection is financeable.
-
- 04** The equity investor's governance role is not optional; it is the source of optionality value.
Alitheia's board-level presence across the sixty-month lease cycle made the buyout-timing analysis possible. Without an active, technical equity partner, the optionality value stays theoretical.
-
- 05** Replicability is a function of structure, not subsidy.
The Psaltry transaction was commercial throughout: commercial lease, commercial buyout, commercial developer, commercial debt at the developer level. The structure does not depend on grant capital to scale. It depends on a market that recognises the lease-to-own logic and prices it correctly.
-
- 06** The active equity investor is the source of the thesis.
Psaltry's transition was possible because Alitheia's AIF fund provided the governance, the structuring expertise, and the conviction to back a women-led industrial business two years before the transaction was complete. That is the investor role Amplify is built to continue across the next generation of African industrial SMEs.

The Psaltry blueprint is replicable across hundreds of African industrial SMEs, if three communities build the architecture that does not yet exist.

Psaltry is one factory. The structural blind spot it inhabits (women-led industrial SMEs, off the household track and below the utility track, carrying the continent's most expensive electricity) spans thousands of processors, manufacturers, and cold-chain operators across sub-Saharan Africa. The IEA estimates the productive-use clean-energy financing gap at several billion dollars annually. The Psaltry transaction proves the unit economics are sound. What is missing is the architecture: the DFI-anchored leasing platforms, the gender-lens co-investment vehicles, the blended-finance first-loss tranches, and the measurement standards that would make this class of transaction routine rather than exceptional.

40%+

energy-cost reduction from green manufacturing transitions (Alitheia portfolio data).

<5%

of Africa's clean-energy finance reaches productive-use industrial assets.

FOR CAPITAL ALLOCATORS

Engage with Amplify — Alitheia's next-generation fund — to co-invest in the DFI-anchored leasing platforms and gender-lens vehicles that make the Psaltry transaction routine rather than exceptional. The proof of concept exists. The capital architecture is what's next.

FOR POLICYMAKERS & REGULATORS

Treat captive industrial solar leases as eligible counterparts in carbon, FX, and concessional facilities. Industrial SMEs executing lease-to-own clean-energy transitions are decarbonising at scale and producing measurement-grade emissions data — but they currently cannot access carbon-finance, FX-hedging, or concessional facilities available to larger or sovereign-tagged projects.

FOR OPERATING PARTNERS

Treat the energy transition as a strategic capital decision, not a sustainability line item. The most important lesson from Psaltry is that the transition was a board-level, multi-year capital decision. Bring the same analytical rigour to the energy mix that you bring to working capital, machinery, and offtake. Our experience says the transition produces boardroom returns

The blueprint is ready. The capital architecture is the missing variable — buildable in the next twenty-four months.

Methodology, data provenance, and further reading



PROGRAMME DATA

- Psaltry International ESG KPI workbook, 2023 baseline and 2025 year-one outcomes — energy consumption by source, emissions by scope, diesel displacement, lease payment schedule.
- Psaltry / developer lease contract terms — fixed monthly payment, sixty-month tenor, year-five and year-ten buyout options.
- Alitheia value creation team energy audit and optionality modelling, 2023.
- Psaltry board papers on lease approval and buyout-timing analysis, Alitheia / Psaltry, 2023–2025.

PUBLIC DATA & FRAMEWORKS

- International Energy Agency — Africa Energy Outlook 2023; productive-use financing gap estimates.
- IPCC Sixth Assessment Report (AR6) — emission factors for diesel combustion.
- IEA 2024 — Nigeria grid emission factor.
- GOGLA — productive-use solar market report, 2023.
- 2X Challenge — productive-use investment criteria; gender-lens capital mobilisation data.
- Convergence — blended-finance database; productive-use segment data.
- SE4All — blended-finance frameworks for clean energy in emerging markets.
- World Bank / IFC — women-led SME access-to-finance gap, sub-Saharan Africa.

METHODOLOGY NOTES

This case study is built entirely on documented programme data, verified lease contract terms, and public datasets. Energy consumption figures are metered, while emissions calculations use IPCC AR6 diesel factors and IEA 2024 Nigeria grid factors. The counterfactual (diesel-plus-grid baseline) is based on the 2023 metered consumption profile. No reconstructed scenes or attributed personal quotes are used.

03

Financing the Last Mile

How Lupiya proved that zero-collateral finance for women farmers is not a concession — it is the commercial thesis.

HOW TO READ THIS CASE

- 1 · Executive summary
- 2 · The setting
- 3 · The diagnosis
- 4 · Strategic question
- 5 · Pillar 1 — Credit design
- 6 · Pillar 2 — Consortium model
- 7 · Pillar 3 — Gender impact
- 8 · Pillar 4 — Scale architecture
- 9 · By the numbers
- 10 · The read-across
- 11 · Lessons that travel
- 12 · What's next
- 13 · Endnotes & sources

Alitheia's gender lens fund, Alitheia IDF, backed Lupiya to prove a conviction: that women farmers excluded from the financial system are not a risk category, they are the most compelling investment thesis in African agricultural finance

For two decades, Alitheia has held the view that the businesses most excluded from mainstream capital are often the ones with the strongest fundamentals. Lupiya Financial Services, a portfolio company of AIF, Alitheia's pioneer gender-lens fund, is the proof in agricultural finance. Zambia's 2024/2025 drought exposed what millions of smallholder farmers already knew: rain-fed agriculture is a wager, not a strategy. Solar-powered irrigation exists, works, and is proven in the field. For most rural women farmers, it remains entirely out of reach, not because of scepticism, but because of finance. When Lupiya's field teams conducted live demonstrations in Kafue, Chongwe, and Chibombo, women were present, engaged, and technically informed. This shows that the barrier was a product that had not caught up with the farmer making the decisions.

Lupiya Financial Services, a portfolio company of AIF, Africa's pioneer gender-lens fund, designed and deployed the USAID Accelerated Innovation Delivery Initiative (AID-I) programme to close that gap. A bespoke zero-collateral credit-scoring model assessed observable household indicators rather than formal financial history, enabling over 100 attendee farmers to access solar irrigation finance across five districts in Zambia's Central and Lusaka Provinces.

135 solar pumps were deployed, exceeding the original target of 130. Over 70 farmers were trained in climate-smart agriculture and financial literacy. The consortium model is replicable in any SSA market where the same three components are present. The borrower registry built through AID-I is now the foundation for Phase 2, which explicitly targets women-led cooperatives as the primary growth segment. This is the model Alitheia's Amplify Fund is designed to scale, deploying a blended capital stack across exactly the intersection of gender-smart investment, climate resilience, and agricultural financial inclusion that mainstream capital has consistently missed.

135

solar pumps – 104% of target

57

first-time, zero-collateral borrowers

70+

farmers trained

5

districts activated

*The 135 pumps are more than hardware.
They prove that financial inclusion and
clean energy access are the same agenda.*

SECTION 2 · THE SETTING

Zambia has 1.3 million smallholder farming households. The majority farm rain-fed, on land they do not own, with no path into the formal financial system

Zambia's 2024/2025 drought laid bare a structural reality: rain-fed agriculture is a wager. Solar-powered irrigation is the technology that breaks that dependency; it exists, it works, and it is proven in the field. But for most rural women farmers in Kafue, Chongwe, and Chibombo, it remains entirely out of reach. Conventional lenders require collateral, formal credit histories, and documented income streams. Rural women farmers have none of these. They farm on land they do not own. Their income is seasonal, cash-based, and undocumented. They are, in the eyes of the financial system, invisible.

EXHIBIT 2.1 · THE ACCESS GAP – FOUR DIMENSIONS

1.3M

smallholder farming households in Zambia

~70%

of SSA women in agriculture lack access to formal finance

1 season

productive window for rain-fed smallholders
— solar unlocks year-round

\$0

collateral available — the system's primary exclusion criterion

Source: Lupiya AID-I Semi-Annual Progress Report, Jan–Aug 2025; USAID AID-I documentation; World Bank — women's financial inclusion in SSA.

CLIMATE · THE ACCELERANT

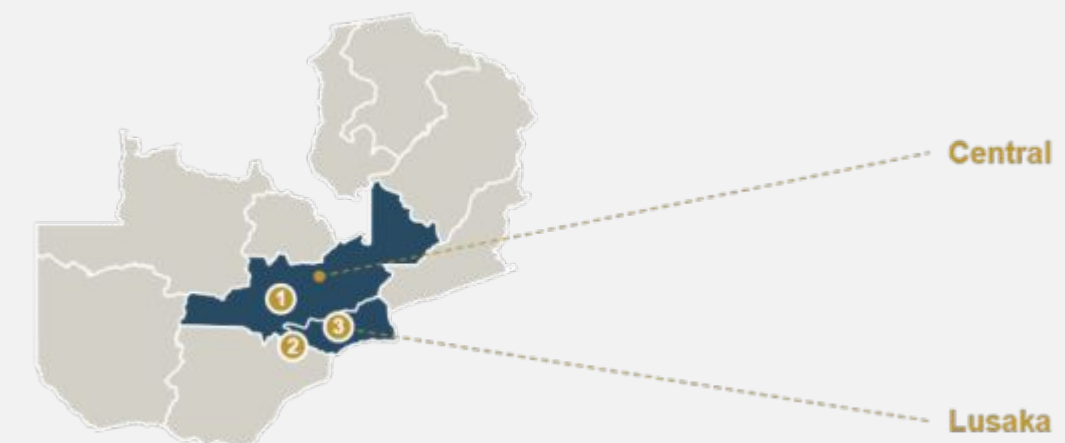
Zambia's 2024/2025 drought compressed an already fragile agricultural season, reducing yields and household income for smallholders with no irrigation backup. Rain-fed agriculture locks farmers into a single productive season. Solar-powered irrigation is the structural fix, but only if farmers can access it.

GENDER · EXCLUSION IS STRUCTURAL, NOT INCIDENTAL

Rural women farmers in Zambia farm on land they do not own, with income that is seasonal and cash based. The formal financial system's collateral requirement is a gendered exclusion mechanism; conventional lenders require collateral, formal credit histories, and documented income streams. Rural women have none of these.

FINANCE · THE MISSING LAYER

Solar pump hardware exist. Distribution partners exist. What was missing was a financing layer designed around the indicators available in a rural household rather than the formal system. Lupiya's credit-scoring model was built to close precisely that gap.



Zambia: Central and Lusaka highlighted, and relevant districts (1-Chibombo, 2- Kafue, 3-Chongwe)

Suggested source: Internal field data.

Field demonstrations proved women were ready. The gap between training participation and formal loan registration was not disengagement — it was a product design signal.

When Lupiya's field teams conducted live demonstrations across five districts, women were present, technically engaged, and ready. Less than 30% of training participants translated into formal loan registrations in proportion. This gap was the diagnostic signal that reframed Phase 2.

EXHIBIT 3.1 · WHAT THE AID-I FIELD DATA REVEALED

~30%

• of training participants were women — higher than formal loan registration, signaling a product-market gap, not disengagement

100+

farmers formally credit-scored using observable household indicators: roof type, distance to mobile money, farming tenure

104%

of revised AID-I milestone achieved — 135 pumps deployed against a target of 130

5

activated across Zambia's Central and Lusaka Provinces — Kafue, Chongwe, Chibombo, and beyond

Source: Lupiya AID-I Semi-Annual Progress Report, Jan-Aug 2025; Lupiya internal credit-scoring & field activation data.

The credit-scoring model was built around indicators directly observable in a farming household: roof type as a proxy for household stability and asset base; distance to mobile money agents measuring existing financial participation; farming tenure and crop diversification indicating agricultural competence; and household composition and repayment capacity. A woman farming two acres along a river in Kafue, with no land title and no bank account, could be assessed accurately and financed responsibly. 57 farmers were onboarded through this model. Their repayment performance is now building the registry that will underpin Phase 2.

The training-to-loan gap reframed the Phase 2 design: women-led cooperative targeting, adjusted loan structuring, and expanded female field agent networks.

The training-to-loan gap reframed the Phase 2 design: women-led cooperative targeting, adjusted loan structuring, and expanded female field agent networks.

If the technology existed and women wanted it — what would it take to finance the farmer the bank ignores?

Solar irrigation hardware was available. Vitalite distributed it. Lima Links provided market linkages. What the system lacked was a credit layer designed for a borrower with no collateral, no formal credit history, and income tied to a harvest cycle. The AID-I programme was the test of whether purpose-built credit design could bridge that gap, and whether a consortium model could make the unit economics hold.

Technology access without financial access is not empowerment.

THE TWO QUESTIONS

- 1** Could a zero-collateral credit-scoring model accurately assess and responsibly finance rural women farmers at the bottom of the pyramid?
- 2** Would harvest-aligned repayment improve collection rates while serving the agricultural cash-flow reality?

The diagnosis pointed to credit design as the primary intervention. The strategic question forced the team to prove it could be done responsibly, at scale, with women at the centre.

Credit design: a zero-collateral model built around the indicators available

Lupiya's core innovation was not solar pumps. It was the credit-scoring model that made the pump accessible to farmers, whom the formal financial system had never reached.

Rather than replicating the collateral-based assessment that excludes rural women, Lupiya's model assessed what was directly observable: roof type as a proxy for household stability; distance to mobile money agents measuring existing financial participation; farming tenure and crop diversification indicating agricultural competence; and household composition and income source analysis. Harvest-aligned repayment schedules matched cash outflows to the agricultural calendar. A woman farming two acres along a river in Kafue, with no land title and no bank account, could be assessed accurately and financed responsibly. 57 farmers were onboarded through this model, many of them women accessing formal finance for the first time. Their repayment records are now building the borrower registry for Phase 2.

EXHIBIT 5.1 · CREDIT SCORING MODEL - OBSERVABLE INDICATORS

- ↗ **Roof type** — proxy for household stability and asset base
- ↗ **Distance to mobile money** — existing financial participation
- ↗ **Farming tenure & crop diversification** — agricultural competence
- ↗ **Household composition & income source analysis**
- ↗ **Harvest-aligned repayment** matched to agricultural cash flow

Harvest-aligned repayment is not concessional finance. It is accurate pricing of agricultural cash flow, and it improved both collection rates and farmer satisfaction simultaneously.

Consortium design: three capabilities that none of the partners could provide alone

The AID-I programme brought together three organisations whose capabilities were genuinely complementary, none of whom could have reached this borrower segment alone.

Lima Links provided farmer market-linkage intelligence and deal origination, identifying smallholders with active production and real market connections. Vitalite handled solar pump procurement, logistics, and last-mile distribution. Lupiya designed and deployed the financing. USAID blended capital de-risked entry for all three; no single actor bore full cost or risk. Community trust networks, including cooperative leaders, village headmen, and indunas, compressed sales cycles, improved onboarding quality, and created social accountability that no call center can replicate. Women's participation in training was substantially higher in communities where trusted local leaders had endorsed the programme.

The consortium is the unit of replication — not just the pump. Every component is present in virtually every SSA agricultural market.

The consortium — a fintech credit layer, a hardware distributor, a market-linkage aggregator, and a community trust network — is present in virtually every SSA agricultural market.



Gender design: five pathways through which a solar pump becomes an economic empowerment tool

The framing of clean energy as a climate solution misses its most powerful dimension: its capacity to transform women's economic lives.

The AID-I programme illuminates five pathways. From seasonal to year-round income: solar irrigation breaks the single-season constraint, smoothing income across the year. From fuel dependence to cost predictability: diesel's volatile pricing made budgeting impossible; solar replaces a variable cost with near-zero marginal operating cost. From exclusion to financial inclusion: for 57 farmers, a portion of them women, the pump transaction was an entry point into the formal financial system, through a credit record, a repayment history, and a foundation. From household labour to market participation: freed from manual irrigation, women focused on crop quality, post-harvest handling, and market relationships. From beneficiary to decision-maker: when a woman owns an asset in her name and manages its repayment from her own income, her position within the household changes.

Women made up roughly 30% of AID-I training participants and approximately 10% of farmers at contract signing — a meaningful share in a context where men typically present as household financial decision-makers, and one that reflects the women who were primary farm operators making irrigation and market decisions every day.



Evidence design: a borrower registry that turns 135 pumps into the foundation for SSA scale

The AID-I programme has done the work that DFIs typically require before committing capital: de-risked a new lending category, built a borrower registry with documented repayment behaviour, and proved the consortium model across five districts.

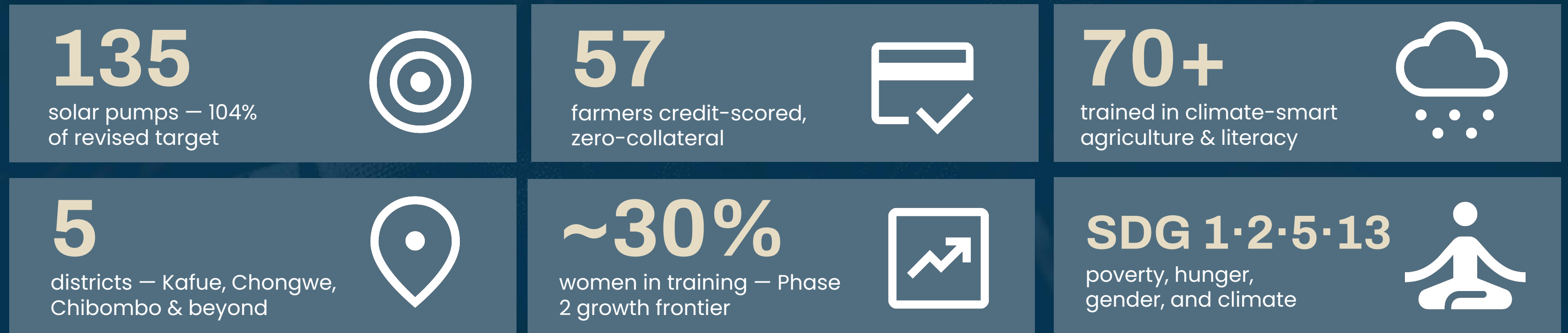
The AID-I programme has done the work DFIs typically require before committing capital: de-risked a new lending category, built a borrower registry with documented repayment behaviour, established unit economics across five districts, and proved the consortium model with three operating partners. Lupiya is not asking development finance institutions to fund an experiment, it is asking them to scale a validated system. The ARISE¹¹ framework maps directly to the five design conditions Lupiya's model satisfies. Each condition is verifiable, documented, and replicable. Zambia alone has 1.3 million smallholder farming households. The playbook transfers to any SSA market where the same three consortium components are present.

Women borrowers are the commercial thesis for Phase 2, and the segment with the most constrained access to alternatives.



AID-I exceeded its deployment target, onboarded 57 first-time borrowers, trained 70+ farmers, and activated five districts, with women as the Phase 2 commercial thesis

EXHIBIT 9.1 AID-I OUTCOMES - TO AUGUST 2025



Source: Lupiya AID-I Semi-Annual Progress Report (Jan-Aug 2025); Lupiya internal credit-scoring & field activation data.

How Lupiya's model aligns with global frameworks for gender-inclusive clean energy finance.

The AID-I programme connects directly to the global frameworks governing gender-lens investing, agricultural finance, and clean energy access in emerging markets.

EXHIBIT 10.1 DESIGN CHOICES AND WHAT THEY ANTICIPATED

<p>Zero-collateral credit-scoring model</p> <p>IFC 2X criteria for gender-lens investment; UN SDG 5 financial inclusion for women; CGAP agricultural finance inclusion frameworks.</p>	<p>Harvest-aligned repayment structures</p> <p>CGAP / FAO agricultural lending best practice — repayment aligned to cash flow, not arbitrary monthly intervals.</p>	<p>Women as primary borrowers & decision-makers</p> <p>IFC 2X gender lens; CPI gender-inclusive clean energy frameworks; SDG 5 & 7 cross-cutting alignment.</p>	<p>Consortium model — fintech + hardware + linkage</p> <p>USAID blended finance frameworks; GCF readiness and de-risking facilities for first-of-kind lending categories.</p>	<p>Borrower registry as DFI-ready evidence base</p> <p>GCF / DFI impact reporting standards — documented repayment behaviour as the basis for institutional capital deployment.</p>
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Source: Alitheia synthesis, cross-referenced to IFC 2X, CGAP, FAO, GCF, USAID AID-I documentation.

Lupiya proved that technology access without financial access is not empowerment, and that women farmers are the commercial thesis, not the side note.

-
- | | | |
|-----------|--|--|
| 01 | Technology access without financial access is not empowerment. | The pumps existed before AID-I; the financial layer was missing. Credit design is the primary intervention in any replication. |
| 02 | Harvest-aligned repayment is accurate pricing, not concession. | It models agricultural cash flow and improved collection rates and satisfaction at once. Every SSA agri-lending programme should apply it. |
| 03 | Community trust networks are the lowest-cost distribution Infrastructure. | Cooperative leaders and village networks compressed sales cycles and created accountability no call centre can replicate. |
| 04 | The training-to-loan gap is a product-design opportunity. | ~30% of trainees were women but did not convert proportionally — a product-market gap, not disengagement. Phase 2 is built on it. |
| 05 | Women borrowers are the commercial growth thesis. | The fastest-growing segment with the most constrained alternatives. Gender equity and returns compound, not trade off. |
-

From 135 pumps in five Zambian districts to gender-inclusive solar irrigation finance across Sub-Saharan Africa — and the LCAW ask.

The scale of the opportunity is significant. Across sub-Saharan Africa, approximately 70% of women in agriculture lack access to formal finance — not because they are not creditworthy, but because the product has not existed. Alitheia's own portfolio data shows that gender-smart investment in businesses like Lupiya produces compounding returns: financial inclusion, agricultural productivity, and climate resilience reinforce each other in ways that no single-thesis fund can capture alone. Alitheia's Amplify Fund is being built to deploy capital at exactly this intersection — a blended capital stack that treats Africa's most persistent structural barriers as its most compelling investment opportunities. Lupiya's borrower registry is not just a proof of concept. It is Amplify's first chapter in agricultural financial inclusion.

~70%

of SSA women in agriculture lack access to formal finance.

FOR CAPITAL ALLOCATORS

Engage with the Amplify Fund to deploy capital into validated gender-smart agricultural finance models like Lupiya's. The borrower registry exists. The unit economics are documented. The replication map spans every SSA market where the same consortium components are present.

FOR POLICYMAKERS

Recognise zero-collateral agricultural credit-scoring as a formal regulatory category. The exclusion of women smallholders from the financial system is a policy design problem.

FOR PARTNERS

Bring the consortium model to your market. Lupiya's credit-scoring layer, paired with local hardware distribution and market-linkage partners, is deployable across Sub-Saharan Africa.

The 135 pumps are proof that financial inclusion and clean energy access are the same agenda. The blueprint is ready. The capital is the missing variable.

Methodology, data provenance, and further reading

PROGRAMME DATA

- Lupiya Financial Services AID-I Semi-Annual Progress Report, January–August 2025.
- USAID Accelerated Innovation Delivery Initiative (AID-I) Programme Documentation.
- Lupiya internal credit-scoring model documentation and field activation data.

PUBLIC DATA & FRAMEWORKS

- World Bank — women's financial inclusion in Sub-Saharan Africa.
- FAO — smallholder agriculture and climate resilience in Zambia.
- IFC 2X gender-lens investment criteria.
- CGAP — agricultural finance and financial inclusion frameworks.
- UN SDG Tracker — SDG 1, 2, 5, 13 progress indicators.

- USAID — AID-I programme framework documentation.

METHODOLOGY NOTES

All figures cited reflect Lupiya AID-I programme data as reported in the Semi-Annual Progress Report (January–August 2025) unless otherwise stated. Women participation figures reflect field training and demonstration sessions. Formal loan registration figures reflect farmers formally onboarded through Lupiya's credit-scoring model. No reconstructed scenes or attributed personal quotes are used in this case study.

This case study is built entirely on documented programme data, public datasets, and verified research.

- Agency, Relevance, Infrastructure, Skills, Engagement
- A fintech credit-scoring layer, a hardware distribution partner, a market-linkage aggregator, and a community trust network



04

Cold Chain, Clean Power

How Hinckley proved that battery storage could slash electricity costs for small commercial operators in West Africa — with receipts.

HOW TO READ THIS CASE

- 1 · Executive summary
- 2 · The setting
- 3 · The diagnosis
- 4 · Strategic question
- 5 · Pillar 1 — System design
- 6 · Pillar 2 — Load shifting
- 7 · Pillar 3 — Cold chain reliability
- 8 · Pillar 4 — Evidence architecture
- 9 · By the numbers
- 10 · The read-across
- 11 · Lessons that travel
- 12 · What's next
- 13 · Endnotes & sources

Alitheia's uMunthu Fund backed Hinckley to prove a conviction: that commercially viable clean energy storage works at small commercial scale in West Africa — and that the cold chain is where the proof lives.

Alitheia's uMunthu Fund was built on the view that Africa's most persistent infrastructure gaps are also its most overlooked investment opportunities. Hinckley, a portfolio company of uMunthu Fund II, is proving that conviction in Ghana's commercial cold chain, one receipt-verified installation at a time. In January 2026, Hinckley completed the installation of a Lithium Iron Phosphate (LFP) battery storage system at a FanMilk retail facility in Accra, Ghana. The facility operates eleven refrigerators running continuously to maintain the cold chain for perishable consumer goods. Prior to the installation, the operator purchased GHC 1,000 worth of electricity every nine days, a consistent and significant cost burden driven almost entirely by refrigeration load.

Following the LFP installation, that purchase interval extended to an average of fifteen days per GHC 1,000 top-up. Across the 59-day evaluation period from January to March 2026, actual electricity purchases fell from an expected seven to five, a direct saving of GHC 2,000, (~ US\$183). These results were achieved with only six of the eleven refrigerators connected to the system, representing a 55% partial deployment. The data is receipt-verified: every purchase record, before and after, is documented.

The case matters beyond the numbers. It demonstrates that commercially viable battery storage can be designed, installed, and measured at small commercial scale across West Africa, in the retail cold chain segment that serves millions of final consumers daily. With full deployment, Hinckley's projections indicate proportionally greater savings. This is the climate resilience thesis Alitheia's Amplify Fund is designed to scale: deploying a blended capital stack into exactly the productive-use clean energy segment, businesses that cut costs, protect livelihoods, and decarbonise simultaneously, that mainstream capital has consistently passed over.

40%

cut in electricity purchases

GHC 2K

saved in 59 days (~US\$183)

6 / 11

refrigerators connected

+67%

energy utilisation efficiency

GHC 2,000 saved in 59 days, with half the system live. The full deployment case writes itself.

Ghana's commercial sector faces high, volatile electricity costs: refrigeration-dependent businesses bear the heaviest burden.

Ghana's electricity tariffs for commercial and residential consumers have risen significantly over the past decade, driven by generation capacity constraints, currency depreciation, and import cost pressures on fuel. That trend has now collided with a global shock. Since the outbreak of the US-Israel war on Iran in February 2026, the closure of the Strait of Hormuz and disruption to Gulf energy infrastructure have more than doubled the price of diesel and kerosene-derived fuels in many markets and pushed import-dependent economies into active electricity rationing and the search for alternative supply. For businesses dependent on continuous refrigeration, including retail outlets, food processors, and cold chain distributors

, electricity is not a variable overhead. It is an existential operating cost, and one whose volatility now sits well outside management's control.

The FanMilk Accra outlet sits at exactly the point in the value chain where this cost is most punishing. FanMilk is one of West Africa's largest dairy and frozen-dessert brands, and the Accra facility is a distributor node, the last link between the factory and the final consumer. The brand promise is delivered, or broken, at this stage of the chain: a freezer that runs warm for a few hours is the difference between a product that sells and one that is written off. Load cannot be reduced without compromising product quality, food safety, and the

reliability of the entire downstream network of retailers and consumers the outlet serves.

Most distributors in this segment are MSMEs operating on thin margins, where even a ten-dollar daily increase in energy costs can be the difference between continuing to trade and closing the business. In the current price environment, the question was never whether to use electricity. It was whether there was a smarter way to buy and deploy it fast enough to keep the distributor, and the value chain behind it, in business.

EXHIBIT 9.1 THE ENERGY COST CONTEXT — GHANA COMMERCIAL SECTOR



Source: Hinckley LFP field data, Accra, 2025–2026; ECG purchase receipts (client-verified); IEA Africa Energy Outlook.

COST

GHC 1,000 every nine days — over 59 days ≈ seven top-ups and GHC 7,000. A global shock (Strait of Hormuz closure, Feb 2026) more than doubled diesel and kerosene and triggered rationing.

QUALITY

FanMilk's Accra outlet is a distributor node — the last link to the consumer. A freezer that runs warm for hours is the difference between a product that sells and one written off. Stable power is a public-health issue.

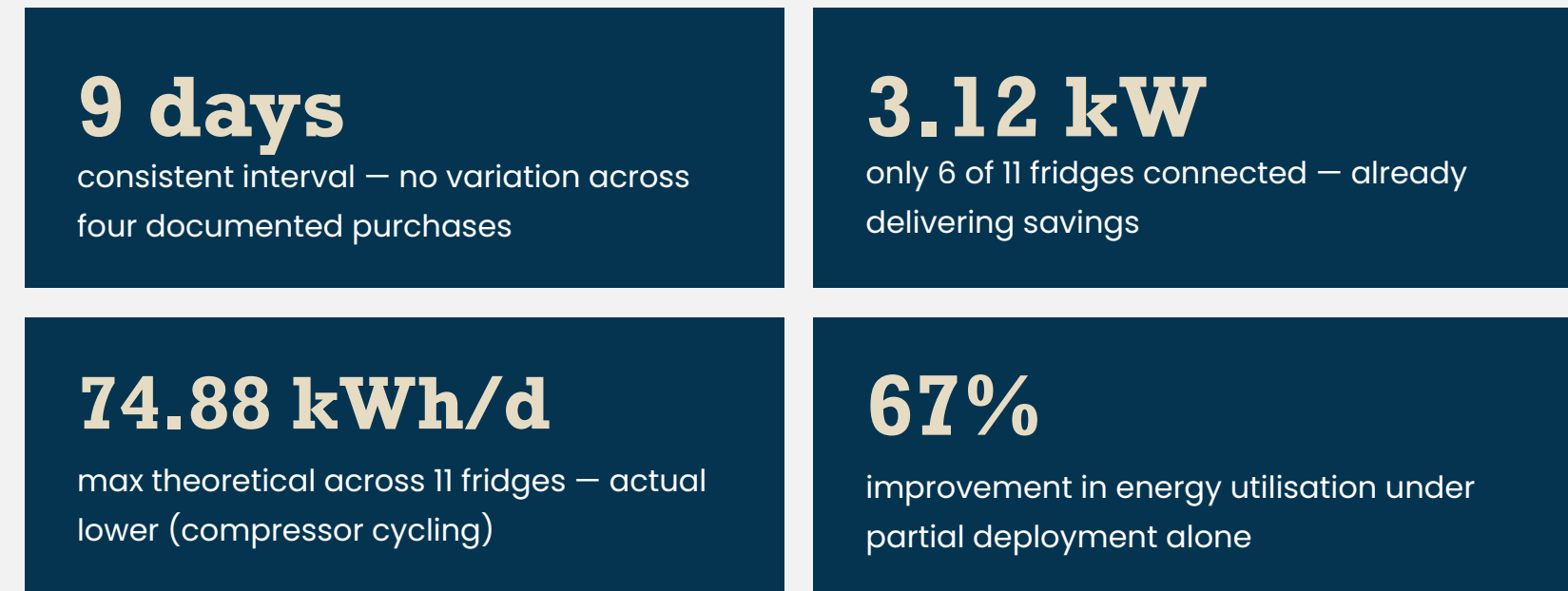
LIVELIHOODS

Most distributors are MSMEs on thin margins, where even a ten-dollar daily energy increase can be the line between trading and closing.

The pre-installation receipt data showed the real problem: not the total electricity cost, but the inability to shift load, and the receipts proved it.

Hinckley's pre-installation assessment drew on actual Electricity Company of Ghana Ltd purchase receipts provided by the FanMilk facility operator. Four receipts spanning November 23 to December 31, 2025 established a consistent pre-installation baseline: GHC 1,000 every nine days.

EXHIBIT 3.1 · WHAT THE PRE-INSTALLATION RECEIPTS REVEALED



Source: ECG purchase receipts (4 pre-installation, Nov 23 – Dec 31, 2025); Hinckley pre-installation assessment.

The receipts told a straightforward story. Without load shifting capability, every unit of electricity consumed during peak tariff hours was paid at the highest rate. The facility had no mechanism to store off-peak power and deploy it during peak demand periods. The LFP system was designed precisely to close that gap; by storing energy when tariffs are lower and releasing it to power refrigeration during peak periods, it extends the effective life of each GHC 1,000 top-up.

The diagnosis reframed the design brief. The challenge was timing electricity consumption to maximise value and protect the distributor from fuel-price shocks it cannot easily absorb. Battery storage, sized to the facility's load profile, solved both problems simultaneously: lower electricity costs per productive day and a cheaper, more stable alternative to diesel, whose price has more than doubled.

Could a battery storage system serve a small commercial refrigeration operator — and be worth it at that scale?

Battery storage for commercial and industrial users is a validated technology globally. The question in the West African context was whether the unit economics held at the small commercial scale typical of retail food distribution outlets — a segment defined by limited capital, constrained floor space, and high sensitivity to operational disruption

A phased installation approach was selected specifically to answer this question with real operating data before full deployment.

Pillar 1: A phased installation that turned commercial caution into investable evidence.

Hinckley designed the FanMilk installation in deliberate phases — not as a limitation, but as a controlled experiment that would produce verifiable, receipt-level performance data at each stage before committing to full deployment.

The LFP system installation was completed on January 7, 2026, with six of the eleven refrigerators (3.12 kW of the total 5.72 kW load) connected in Phase 1. This represented a phased approach allowing the operator to observe system performance e.g. purchase intervals, refrigeration consistency, and operational disruption, before proceeding to full integration. The result was a dataset of five post-installation electricity purchase receipts, spanning January 13 to March 13, 2026, each providing an independent, third-party verified data point from the Electricity Company of Ghana.

EXHIBIT 5.1 · PHASE 1 SYSTEM SPECIFICATIONS

Total refrigeration load	5.72 kW (11 × 520W)
Phase 1 connected load	3.12 kW (6 fridges)
Installation completion date	7 January 2026
Evaluation period	59 days (13 Jan – 13 Mar)
Data source	ECG receipts — Days from Last Charge field

The phased approach is both a risk management tool and a replication asset. Any future deployment at any cold chain retail outlet across West Africa can follow the same evidence-gathering structure.

Pillar 2: Load shifting that converted the same electricity spend into 67% more productive days.

The LFP system's primary mechanism of action is load shifting: storing electricity during off-peak, lower-cost periods and deploying it to power refrigeration during peak tariff hours — converting a fixed electricity budget into a larger effective energy reserve.

Before installation, the facility purchased GHC 1,000 worth of electricity every nine days. After installation, the same GHC 1,000 purchase lasted an average of fifteen days, a 67% improvement in energy utilisation efficiency. Across the 59-day evaluation period, actual purchases fell from an expected seven to five, generating a direct cost saving of GHC 2,000 (approximately US\$183). The variation in post-installation purchase intervals — 12, 23, 11, and 13 days — reflects normal operational variation rather than system inconsistency. The average of approximately 15 days is robust across the dataset.

Before — 9 days / GHC 1,000



After — ~15 days / GHC 1,000



EXHIBIT 6.1 · PURCHASE INTERVAL COMPARISON PRE VS. POST LFP

Pre-installation interval	9 days
Post-installation average	~15 days
Improvement	+6 days (+67%)
Expected purchases (59 d)	7
Actual purchases (59 d)	5
Direct saving	GHC 2,000 (~US\$183)

These are not projections. They are documented electricity purchases, verified by ECG receipt data, with Days from Last Charge printed on each receipt.

Pillar 3: Reliable refrigeration that protected product quality and value chain stability throughout.



Battery storage serves two objectives at once: cost reduction through load shifting, and operational resilience through backup power. For a cold-chain operator, the second is as commercially significant as the first.

6 / 6

connected units held refrigeration
across the full 59 days



Throughout the 59-day evaluation period, consistent refrigeration was maintained across all six connected units. Product quality was not compromised. The system's ability to provide reliable power to the refrigeration load during grid interruptions or peak-demand periods means that the operator's investment protection argument extends beyond cost savings alone. For distributors, retailers, and final consumers, stable product availability and consistent cold chain integrity translate directly into consumer confidence and supply chain reliability. The livelihoods of staff, and the purchasing experience of consumers, are both supported by a system that keeps the cold chain unbroken.

Cold chain reliability is a public health issue as much as a commercial one. Any system that reduces costs while maintaining or improving refrigeration continuity satisfies both tests simultaneously.

Pillar 4: Receipt-verified evidence that builds the replicable case for West Africa's cold chain retail sector.

The most significant feature of the Hinckley FanMilk case is not the technology. It is the evidence. Every claim in this case study is grounded in documented electricity purchase receipts from the Electricity Company of Ghana — an independent, third-party record.

Nine receipts in total (four pre-installation and five post-installation) establish the baseline, document the transition, and verify the performance improvement. Each receipt carries the purchase date, amount, meter number, and critically, the Days from Last Charge field, providing a direct, unambiguous measure of electricity purchase frequency independent of any claim made by the installer or operator. This evidence architecture is the template for any future Hinckley deployment. It demonstrates that the performance case for battery storage in the West African cold chain retail segment can be documented to a standard acceptable for development finance institution due diligence, carbon credit methodologies, and investor reporting.

EXHIBIT 8.1 · RECEIPT LOG - PRE AND POST INSTALLATION

- 4 pre-installation (2025)

Nov 23 **Dec 3** **Dec 23** **Dec 31**

- 5 post-installation (2026)

Jan 13 **Jan 25** **Feb 17** **Feb 28** **Mar 13**

- ISSUING AUTHORITY: electricity company of ghana ltd (ecg) - national utility
- DATA STANDARD meets dfi due diligence and impact reporting requirements



In 59 days, with half the load connected, the FanMilk LFP installation saved GHC 2,000 and extended electricity endurance by 67%

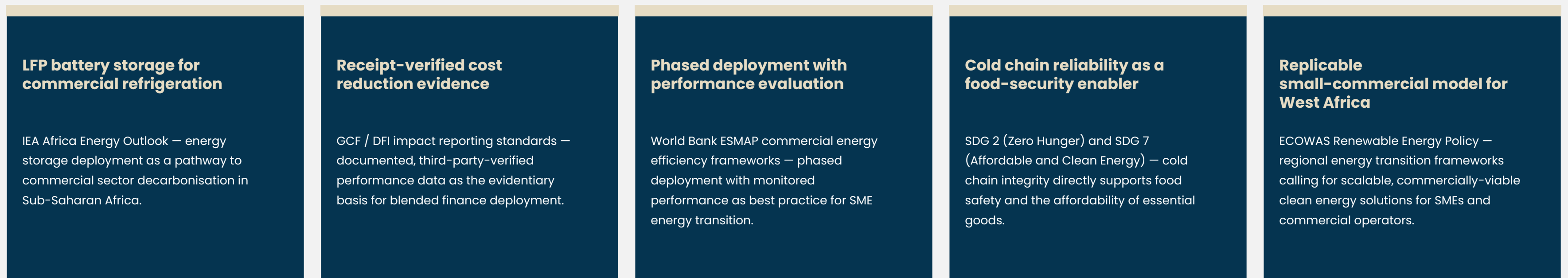
EXHIBIT 9.1 · PHASE 1 OUTCOMES - JANUARY TO MARCH 2026



Source: Hinckley Energy Cost Impact Analysis; ECG purchase receipts, Jan–Mar 2026.

How Hinckley's cold chain battery installation aligns with global clean energy frameworks and West Africa's energy transition priorities.

EXHIBIT 10.1 · DESIGN CHOICES AND WHAT THEY ANTICIPATED



Source: Hinckley synthesis, cross-referenced to IEA, GCF, World Bank ESMAP, ECOWAS energy policy frameworks.

The FanMilk case proves that energy storage works at small commercial scale

-
- | | | |
|-----------|---|--|
| 01 | Evidence architecture is the investment case. | Receipt-level, third-party-verified performance data closes the credibility gap that prevents institutional capital from backing small commercial clean energy deployments in West Africa. |
| 02 | Phased deployment is a feature, not a compromise. | Starting with 6 of 11 refrigerators generated performance data under real operating conditions before full capital commitment, a template for replication and risk management simultaneously. |
| 03 | Load shifting is commercially viable at small scale. | The unit economics held for a single retail outlet with an 11-refrigerator load. The same logic applies to every cold chain operator facing the same electricity tariff structure in Ghana and across West Africa. |
| 04 | Cold chain and clean power are the same agenda. | Battery storage that reduces electricity costs also protects refrigeration continuity, serving consumer health, livelihoods across the value chain, and commercial sustainability with a single intervention. |
| 05 | The full-deployment case is already written. | Phase 1 documented the savings on 55% of the load. Phase 2 (connecting the remaining 5 refrigerators) is not a new experiment. It is the next chapter of a documented story. |
-

From one outlet in Accra to the cold chain retail sector across West Africa — and the LCAW ask.

The FanMilk outlet in Accra's Roman Ridge District is one installation. Ghana has thousands of cold chain retail operators facing the same electricity cost structure, the same refrigeration load profile, and the same absence of affordable energy storage options. The Hinckley model is directly portable, and the replication map extends beyond Ghana: Côte d'Ivoire, Nigeria, Senegal, and across ECOWAS markets where commercial refrigeration is widespread and grid electricity costs are high and volatile.



Source: Adapted from Google search

40%+

energy-cost reduction from green transitions (Alitheia portfolio data).

<5%

of Africa's clean-energy finance reaches productive-use at this scale.

The scale of the opportunity is clear. Across sub-Saharan Africa, commercial operators in food, retail, and cold chain carry the continent's most volatile electricity costs — and less than 5% of Africa's clean energy finance flows to productive-use assets at this scale. Alitheia's own portfolio data shows that green energy transitions in businesses like Hinckley produce at least a 40% reduction in energy costs, with compounding benefits for margins, livelihoods, and supply chain resilience. Alitheia's Amplify Fund is being built to close that financing gap deploying blended capital into the productive-use clean energy segment where climate resilience and commercial returns reinforce each other. The FanMilk installation is not a pilot. It is Amplify's proof of concept in cold chain clean power.

FOR CAPITAL ALLOCATORS

Deploy into validated productive-use models. The unit economics are proven; the evidence is receipt-level; the map spans every ECOWAS market.

FOR POLICYMAKERS

Accelerate clean-energy storage incentives for small commercial operators — ECOWAS commitments require deployment at this scale, not just utility-scale.

FOR PARTNERS

Engage Hinckley as the operating and evidence-generation partner for cold-chain storage across your West African portfolio. The measurement framework is built.

The blueprint is ready. The receipts are proof. The question is how fast we scale.

Methodology, data provenance, and further reading



PROGRAMME DATA

Electricity Company of Ghana Ltd (ECG) purchase receipts — 4 pre-installation (Nov 23–Dec 31, 2025) and 5 post-installation (Jan 13–Mar 13, 2026) — provided by FanMilk Accra facility operator.

Hinckley LFP battery system installation records, FanMilk Accra, installation date January 7, 2026.

Hinckley Energy Cost Impact Analysis of LFP Battery Installation — Client: FanMilk Retail Outlet, Accra, Ghana (internal report, 2026)

PUBLIC DATA & FRAMEWORKS

International Energy Agency — Africa Energy Outlook.

World Bank ESMAP — commercial energy efficiency frameworks for Sub-Saharan Africa.

Electricity Company of Ghana Ltd — residential and commercial tariff schedules.

ECOWAS Centre for Renewable Energy and Energy Efficiency — regional energy transition policy frameworks.

United Nations SDG Tracker — SDG 2, 7, and 13 progress indicators, Sub-Saharan Africa.

METHODOLOGY NOTES

All electricity cost and purchase interval figures are derived directly from ECG purchase receipts provided by the facility operator. Pre-installation baseline: 4 receipts spanning November 23 to December 31, 2025, establishing a 9-day average purchase interval. Post-installation measurement period: 59 days (January 13 to March 13, 2026), 5 receipts. Cost savings calculated as the difference between expected purchases at the 9-day baseline and actual purchases observed. USD equivalents use approximate exchange rates current at time of analysis. tCO₂e avoidance calculations are not included in this case; the primary impact metric is electricity cost reduction and energy utilisation efficiency improvement. Full deployment projections are directional only and based on proportional extrapolation from Phase 1 results.

This case study is built entirely on documented programme data, public datasets, and verified research. No reconstructed scenes or attributed personal quotes are used.

FIVE PRINCIPLES THAT TRAVEL ACROSS ALL FOUR CASES

Across kitchens, factories, phones, and boardrooms, the same five principles separate the cases that scaled from the ones that didn't.

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- | | | |
|-----------|---|--|
| 01 | Capital is the catalyst, not the constraint. | In each case, the binding constraint was not technology, demand, or willingness, but the absence of capital structured around the operator's reality. Catalytic, blended, well-tranched capital is what unlocks adoption. |
| 02 | Design beats persuasion. | CCFI's 3kg cylinder, Psaltry's load-matched solar, Lupiya's alternative-data underwriting, Hinckley's climate-linked KPIs — in every case, the breakthrough came from designing around the user, not from convincing the user to fit the design. |
| 03 | Women are the model, not the lens. | Across the four cases, women appear not as a beneficiary category but as the operating logic — borrowers, distributors, employees, leaders. Gender lens is what makes adoption stick. |
| 04 | Infrastructure and finance must move together. | Hardware without finance is a stranded asset. Finance without infrastructure is a stalled disbursement. Every case in this volume invested in both, simultaneously. |
| 05 | Disclosure builds the next round. | Each case became replicable because data was captured, audited, and shared. The next \$4bn for clean cooking, or the next billion of corporate transition finance, depends on credible MRV from cases like these |
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The blueprints exist. The capital is the variable. The decade is the deadline.

This is the decade where African capital, African operators, and African solutions write the playbook for the global climate transition.

FOR CAPITAL ALLOCATORS

Anchor blended catalytic vehicles for clean cooking, household clean-energy finance, industrial decarbonisation, and corporate transition in priority African markets.

Engage Alitheia on co-investment and fund mandates aligned with the four cases in this volume.

FOR POLICYMAKERS

Pair finance instruments with infrastructure investment, standards, and import facilitation — the three together, never alone.

Treat the four cases as a live evidence base for African NDCs, just-transition platforms, and SDG 7 / 5 delivery.

FOR PARTNERS

Treat women as the distribution model, not the beneficiary list. Design with them, employ them, and underwrite them.

Engage Alitheia on operating partnerships — technology, supply chain, MRV, and field execution.



WHO WE ARE

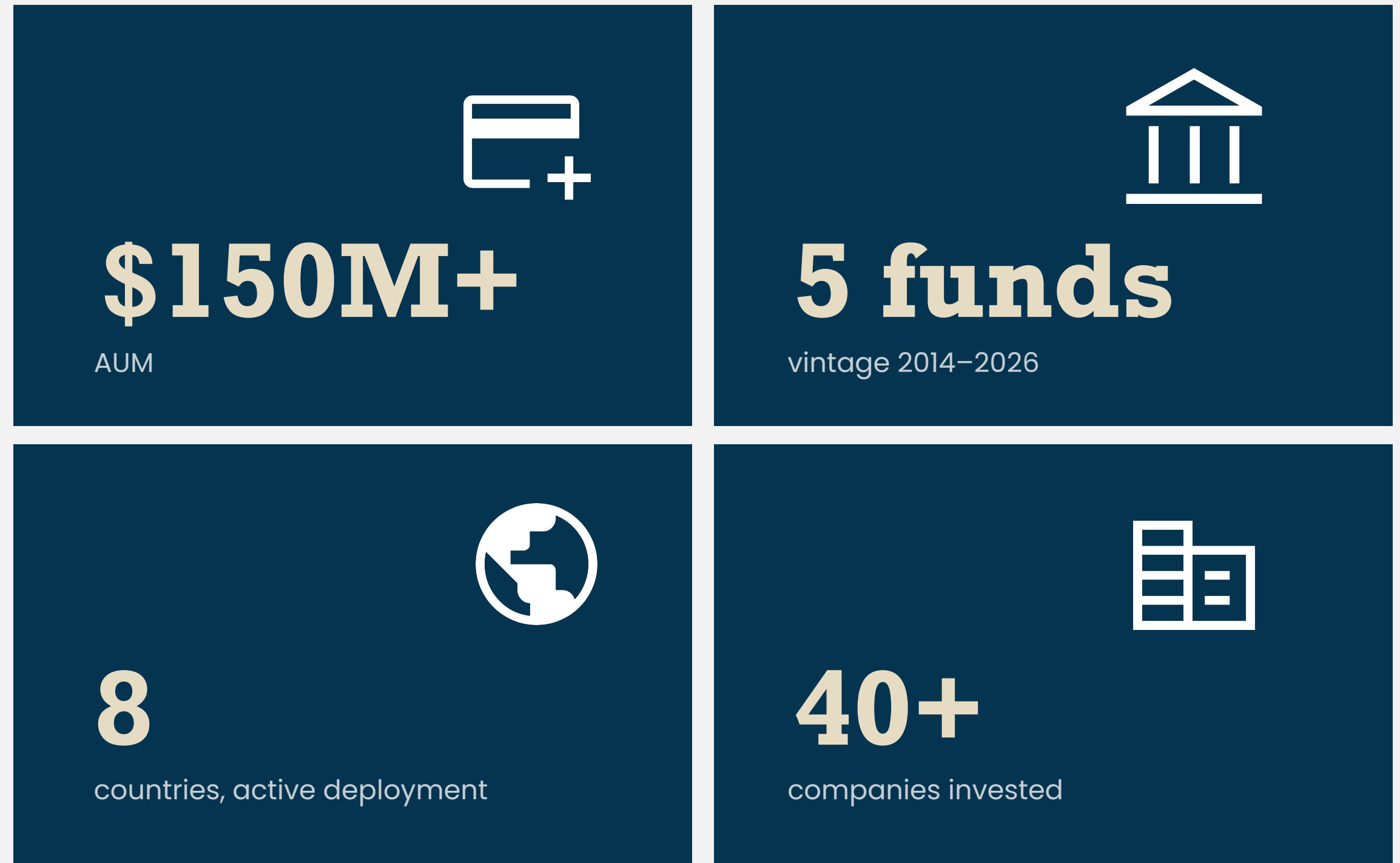
Alitheia Capital is an impact investing private equity fund manager guided by the philosophy of “True Profit with a Purpose.” The firm invests in SMEs and SME enablers addressing critical challenges across African markets, with a focus on financial inclusion, gender-smart investing, and climate resilience.

Alitheia combines capital with strategic support and local market insight to deliver competitive financial and social returns while expanding access and opportunity for underserved businesses and communities.

The firm has deployed capital through multiple fund vehicles, including uMunthu I (2019) and uMunthu II (2023), which focus on expanding access to essential services across Africa. AIF, the Alitheia IDF fund (2019), is Africa’s largest dedicated gender-lens private equity fund. Earlier funds, including the Clean Energy Fund (2012) and GWAMDC (2009), established the firm’s track record in climate-adjacent and development-focused investing.

Headquartered in Lagos, Nigeria, Alitheia integrates gender analysis, climate risk assessment, and impact measurement into its investment process as core inputs to underwriting and value creation.

EXHIBIT A.1 · ALITHEIA AT A GLANCE





HOW TO ENGAGE

Capital allocators & DFIs

Fund and co-investment dialogue

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Operating partners & prospects

Thesis-fit conversations

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Press & media

Case-study materials & spokesperson access

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