

ENERGY EVERYWHERE

A 10x Breakthrough Blueprint for SDG 7 — Achieved by 31.12.2030

Electrons Cheaper Than Excuses • Every Roof a Power Plant • Grids That Build
Themselves

Zero Bureaucracy • 100% Market-Driven • Deadline-Bound Execution

A Comprehensive Framework for Social Entrepreneurs,
Impact Investors, and Purpose-Driven Organizations

2026 Edition • Hard Deadline: 31 December 2030

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Executive Summary

675 million people still live without electricity and 2.1 billion cook with fuels that kill 3.2 million of them each year. Meanwhile solar modules cost 90% less than a decade ago, batteries follow the same curve, and pay-as-you-go fintech has already banked the unbanked for light. Energy poverty in 2026 is a deployment failure, not a technology or capital problem. This blueprint closes it by 31 December 2030.

The machinery: swarm microgrids that interconnect like Lego into national systems, second-life EV batteries flooding the Global South with \$40/kWh storage, cooking-as-a-service that beats charcoal on price, AI energy agents arbitraging every rooftop, and a Clean-Watt Exchange where verified energy access is the tradeable unit. Energy becomes the substrate on which SDGs 1-6 compound: every pod, pump, mill and microschool in this program runs on these electrons.

Core Thesis

1. Distributed solar-plus-storage is now the cheapest electricity in most of the unelectrified world; the constraint is franchise-grade deployment machinery, not physics or finance.
2. Grids should grow like the internet did — from the edge, interconnecting bottom-up — not wait for transmission megaprojects that arrive in 2045.
3. When a verified household-year of clean energy (CWU: Clean-Watt Unit) is tradeable, capital electrifies the map the way it once wired it for mobile.

Key Findings

- Nine ventures achieving universal access at \$41 per person-year with blended portfolio IRR of 11-15%
- Swarm microgrid protocol: village units interconnect automatically, forming self-healing regional grids with 99.5% uptime
- Second-life EV battery packs at \$38-55/kWh unlock 24/7 solar at diesel-parity or better in every priority geography
- Clean cooking-as-a-service undercuts charcoal by 20-35% in 60 cities — the first time clean has been the cheap option
- A Clean-Watt Unit standard verified by smart meters at \$0.35/household/year

Document Structure

This blueprint moves from diagnosis to breakthrough portfolio to execution machinery: market architecture, capital stack, technology layer, measurement, and a half-yearly countdown roadmap terminating on 31 December 2030. Each section contains named ventures, quantitative targets, and specific next actions for entrepreneurs and investors.

PART I: THE REALITY CHECK AND THE 10x DOCTRINE

Chapter 1: The State of Play, Mid-2026

Grid extension electrifies at \$1,200-2,500 per rural connection and moves at bureaucratic speed. Solar home systems reached 200 million people but plateau at lighting-and-phone loads. The unmet demand is productive power: mills, pumps, welders, cold rooms, data work. Charcoal and diesel still take \$80B/year from the poorest households. Every input for a leapfrog exists at record-low cost; the bottleneck is an execution architecture with franchise discipline.

- Household energy spend among the energy-poor averages \$10-25/month — a \$200B market already paying for bad energy.
- EV battery retirements will exceed 350 GWh/year by 2030 — a storage tsunami priced for the Global South.
- Clean cooking is the largest health-energy arbitrage on Earth: \$2.4T in annual health and time costs versus a \$60B service market solution.

Why Business-as-Usual Fails the Deadline

Utility-scale planning cycles are 7-15 years. The deadline is 4.5. Only modular hardware plus franchise replication plus outcome capital compresses deployment into the window.

Chapter 2: The 10x Doctrine for Energy

- **Deploy from the edge.** Villages first, interconnect later — the grid emerges.
- **Productive load leads.** Sell milling, pumping, cooling and compute, not just lumens.
- **Storage is salvage.** Second-life batteries make 24/7 solar a Global-South native technology.
- **Cooking is a service.** Meter the stove, not the fuel bag; beat charcoal on monthly cost.
- **Trade the outcome.** CWUs pay whoever connects and keeps households powered.

PART II: THE BREAKTHROUGH VENTURE PORTFOLIO

Chapter 3: Generation and Grids

Venture 1: Swarm Microgrids

Containerized 30-300 kW solar-storage units with an open interconnection protocol: any two units within reach auto-negotiate power trading, forming district grids without central planning. CAPEX \$0.9-1.1/W installed; tariffs 30-60% below diesel baselines; 60,000 units forming 2,500 emergent regional grids by 2030.

Venture 2: Rooftop Power Marketplaces

Urban and peri-urban rooftops leased into aggregated virtual plants; owners earn rent, anchor tenants buy discounted power, AI agents dispatch and bill. 40 million roofs by 2030.

Venture 3: Second-Life Battery Gigafactories

Regional plants testing, re-racking and warranting retired EV packs at \$38-55/kWh with 5-7 year second lives; 25 plants, 200 GWh cumulative by 2030 — the storage subsidy nobody had to legislate.

Venture 4: Productive-Use Anchors

Every microgrid ships with franchise anchor loads — solar mills, cold rooms (SDG-2 Agri-Nodes), water pumps (SDG-6), diagnostic pods (SDG-3), microschool device fleets (SDG-4) — guaranteeing 55-70% daytime utilization from day one. The cross-SDG demand book is the bankability secret.

Chapter 4: Cooking, Fuels and Finance

Venture 5: Cooking-as-a-Service

Smart induction and electric pressure cooking on metered plans (\$3-6/month) plus LPG and biogas franchises where grids lag; city-by-city charcoal price wars, won with health co-benefits thrown in free. 250 million households converted by 2030.

Venture 6: Village Biogas and Waste-to-Watts

Digesters fed by farm and market waste produce cooking gas and dispatchable power; slurry sells as fertilizer into SDG-2 nodes. 2 million units, franchise-operated.

Venture 7: Energy Wallets and PAYG 2.0

Unified pay-as-you-go rails across all hardware with energy credit scores that graduate households from lantern to grid-share ownership; default-insured, securitized receivables fund the fleet.

Venture 8: The Clean-Watt Exchange (CWX)

A Clean-Watt Unit is minted per household-year of verified tier-2-plus clean energy (smart-meter telemetry, uptime SLAs). Corporates with net-zero pledges, sovereigns and philanthropy buy forward; operators finance fleets against inventory. Target: 1.2 billion CWUs by 31.12.2030.

Venture 9: Grid-Edge Compute

Microgrids sell surplus midday power to modular data pods (AI inference, rendering) that follow cheap electrons; energy exports become digital exports, doubling microgrid revenue and funding rural connectivity.

PART III: MARKET AND PARTNERSHIP ARCHITECTURE

Chapter 6: The Partnership Stack

Layer	Who Plays	Contribution	Return
Demand	Net-zero corporates, sovereigns, compute buyers	CWU forwards, PPA anchors, compute offtake	Verified claims, cheap green compute
Hardware	Module, battery, stove and meter makers	Fleet pricing, uptime warranties	Volume plus service annuities
Nodes	Microgrid franchisees, stove agents, roof aggregators	Build, operate, collect	\$200-600/month operator incomes
Proof	Meter networks, auditors	Telemetry verification	Per-CWU fees

Incumbent utilities become customers (buying swarm power at the edge) and partners (leasing feeders), not casualties — the protocol pays interconnection rent.

Chapter 7: Unit Economics That Compound

- \$41 per person-year all-in with 75% recovered via tariffs and services — the stack self-funds fastest of all 17 once anchor loads land.
- Cooking-as-a-service margins run 25-35% while undercutting charcoal — a rare kill-shot economics.
- Every \$1 of CWU forwards pulls \$6.20 of private fleet CAPEX — the highest leverage in the portfolio.

PART IV: THE CAPITAL STACK

Chapter 8: The \$140 Billion Assembly

Instrument	Source	Size	Role
Fleet debt	Green banks, DFIs, commercial	\$65B	Microgrids, roofs, stoves
PAYG receivables securitization	Institutional fixed income	\$30B	Wallet-financed hardware
CWU forwards	Corporates, sovereigns	\$20B	Access demand floor
Battery plant equity	Climate VC, automakers	\$15B	Second-life gigafactories
Compute offtake prepays	AI and cloud firms	\$7B	Grid-edge pods
First-loss layer	Foundations	\$3B	Fragile-state fleets

PART V: THE TECHNOLOGY LAYER

Chapter 9: Proof, Autonomy and the Agent Workforce

- Proof Layer: tamper-evident smart meters and uptime telemetry; CWU verification at \$0.35/household/year — the cheapest proof in the program.
- Swarm protocol open-source; interconnection handshakes settle on-ledger hourly; any vendor's box can join if certified.
- Agent Workforce: a Household Energy Agent (tariff optimization, appliance advice), an Operator Agent (predictive maintenance cuts downtime 40%), and a Market Agent trading swarm surpluses against compute and irrigation demand.
- Cyber constitution: air-gapped safety controls, signed firmware, bug bounties 10x industry norms.

PART VI: PROOF, GOVERNANCE AND RISK

Chapter 10: Governance Without Bureaucracy

Standards nonprofit holds the swarm protocol and CWU integrity; operations franchised; dashboards public; board seats earned by verified CWUs financed.

Risk	Likelihood	Mitigation
Regulatory blockage / utility monopolies	High	Interconnection rent-sharing, regulator playbooks, start where rules allow and let league tables shame the rest
Battery quality variance	Medium	Per-pack testing telemetry, warranties, gigafactory certification
Currency risk on fleet debt	High	Local-currency facilities, hedging sleeves, tariff indexation
Theft and non-payment	Medium	Community ownership shares, smart-lock loads, energy credit scores
Cooking behavior reversion	Medium	Taste-first marketing, chef ambassadors, charcoal price-war economics

PART VII: COUNTDOWN TO 31.12.2030

Chapter 11: The Half-Yearly Roadmap

Window	Milestones	People with Clean Tier-2+ Energy (cum.)
H2 2026	Swarm protocol v1; 800 microgrids; 2 battery plants; CWU standard live	20M
2027	7 country stacks; 8,000 microgrids; 5M roofs; cooking service in 15 cities	120M
2028	25,000 microgrids; 12 plants; 60M stoves; compute pods at 300 sites	320M
2029	45,000 microgrids; regional swarm grids in 30 corridors; 150M stoves	520M
2030	Saturation of remaining access gaps; fragile-state drone-serviced fleets	675M+ access, 2.1B clean cooking

Kill-or-scale every 180 days on cost per verified CWU; underperforming territories re-auction operator licenses within 30 days.

Chapter 12: 31 December 2030 — The Declaration

Victory is telemetry: universal access in enrolled geographies, clean cooking majorities in every priority city, household energy poverty (over 10% of income on energy) collapsing, and the first emergent national grids built village-up. The energy layer will then quietly power every other goal's machinery — which was the point all along.

- **Entrepreneurs:** a microgrid territory plus anchor franchises is the decade's best infrastructure play at village scale.
- **Automakers:** your retired packs are the Global South's grid — sell them into the gigafactories.
- **Net-zero corporates:** CWU forwards are verified impact where offsets are noise.
- **Utilities:** buy edge power; rent your wires; grow instead of defending.