BUSINESS PRESENTATION · TRANSPORT CLIMATE ACTION PLANNING

From Climate Plans to Commercial Reality

How Clean Energy Reduces the Cost of Transport

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- The cost of ownership barrier to clean transport
- Next-generation battery technology for Africa
- Battery-as-a-Service: making clean cheaper
- Climate dividends from commercial viability
- What climate action plans must get right

Nigeria's Transport Crisis — The Burning Platform

NIGERIA'S TRANSPORT SECTOR

17%

of Nigeria's total national greenhouse gas emissions come from the transport sector — the second largest emitting sector

3×

Fuel costs tripled overnight after the removal of Nigeria's petrol subsidy in May 2023 — the single largest shock to transport operating costs in a generation

"Transport is not just a climate problem. For 11 million last-mile riders, it is an economic survival problem."

The Scale of the Challenge

11M

Last-mile keke and okada riders in Nigeria — the backbone of urban transport for the urban poor

₦11,000

Daily petrol operating cost per keke rider — up from ₦3,500 before subsidy removal

2×

Nigeria's transport demand is projected to more than double by 2050 — with a corresponding doubling of emissions if nothing changes

2040

Nigeria's pledge: all new car and van sales to sales to be zero-emission by 2040, as part of part of carbon neutrality by 2060

95%

of Nigeria's vehicle fleet runs on petrol or diesel — one of the highest fossil fuel dependency rates in sub-Saharan Africa

$8B

Annual cost of vehicle imports to Nigeria — mostly used, polluting vehicles that export wealth and import emissions

The Opportunity

01 Largest captive market for clean transport in transport in Africa

11 million last-mile operators are a ready, willing, and commercially viable market — if clean transport is made affordable.

02 Solar abundance reduces energy cost to near-zero

Nigeria receives 4–6 kWh/m²/day of solar irradiance — the cheapest possible energy source source for charging and battery swapping.

03 Policy alignment creates first-mover advantage

Nigeria's NEMMP 2035 and ETP 2060 create a a policy tailwind for businesses that move now — now — before the market is crowded.

04 Climate finance is available — for bankable models

IFC, UKRI, and development banks are actively actively seeking investable clean transport businesses in ODA-eligible markets.

→ **The question is not *whether* Nigeria's transport sector must decarbonise — it is who will build the commercial model that makes it happen.**

The Real Barrier: Cost of Ownership (COO)

WHY CLIMATE ACTION STALLS

Clean transport is already **cheaper to run** than petrol — the barrier is the **upfront cost and the battery.** Remove the battery from the purchase price and the entire economics change.

Petrol Tricycle

Current standard — ICE keke

Purchase price	₦4,500,000
Daily fuel cost	₦11,000/day
Monthly maintenance	₦25,000–40,000
Annual fuel spend	₦4,015,000
3-year total COO	₦16.5M+

3-YEAR COO **₦16.5M**

E-Tricycle (Battery Owned)

Clean — but still unaffordable

Purchase price (incl. battery)	₦4,800,000
Daily charging cost	₦2,500/day
Monthly maintenance	₦8,000–12,000
Annual energy spend	₦912,500
3-year total COO	₦7.5M

3-YEAR COO **₦7.5M**

E-Tricycle + Battery Swap

GreenTech model — affordable and clean

Purchase price (no battery)	₦1,680,000
Daily swap fee	₦7,000/day
Monthly maintenance	₦5,000–8,000
Annual swap spend	₦2,555,000
3-year total COO	₦9.3M

PURCHASE PRICE SAVING **65% Less**

Upfront Cost Barrier

₦4.8M is 3–4 years of income for a keke rider. No bank will lend against a vehicle with no resale market. The upfront cost is the primary barrier to clean transport adoption.

Battery Ownership Barrier

The battery accounts for 60–65% of an e-tricycle's total cost. Requiring riders to own the battery is the single biggest mistake in clean transport commercialisation.

Financing Gap

Nigerian commercial banks do not finance e-vehicle purchases. No credit history, no collateral framework, no precedent. The financing gap is a market failure that requires innovative business models.

Maintenance & Range Anxiety

Riders fear breakdown without local mechanics, and range range anxiety with no charging infrastructure. Battery Battery swapping solves both — a fresh battery in 3 minutes, at a known location, every day.

→ **The COO barrier is solvable — but only with a business model that separates battery ownership from vehicle ownership. That is GreenTech's core innovation.**

GreenTech's Approach: Making Clean Transport Commercially Viable

THE GREENTECH MODEL

Our Core Philosophy

Climate action in transport will only scale when clean energy is **commercially cheaper** than fossil fuels — not just environmentally better. GreenTech designs every product and service to reduce the Cost of Ownership (COO) at the **purchase stage, the operation stage, and the maintenance stage.** When clean is cheaper, adoption is driven by economics — not altruism. That is how you reach 11 million riders.

3×
COO reduction target across the full vehicle lifecycle

₦4,000
Daily disposable income uplift per rider under GreenTech model

01 STAGE ONE — Purchase Cost

The problem: A standard e-tricycle with battery costs ₦4.8M — the same as a petrol tricycle. The battery alone accounts for 65% of the total vehicle cost. Buyers see no price advantage.

GreenTech's solution: Separate the battery from the vehicle. Sell the e-Sell the e-tricycle chassis only at ₦1.68M. The battery is leased through through the swap network — never owned. The rider's entry cost drops cost drops by 65%.

PURCHASE PRICE REDUCTION **65%**

02 STAGE TWO — Operating Cost

The problem: Petrol costs ₦11,000 per day per rider — a cost that has that has tripled since subsidy removal. This consumes 55–65% of a of a rider's daily gross income, leaving nothing for savings, healthcare, or healthcare, or education.

GreenTech's solution: Solar-powered battery swap stations charge batteries at near-zero energy cost. Riders pay a flat ₦7,000/day swap fee — predictable, affordable, and 36% cheaper than petrol. No fuel price volatility.

DAILY OPERATING COST REDUCTION **36%**

03 STAGE THREE — Maintenance Cost

The problem: Petrol tricycles require monthly servicing at ₦25,000–₦25,000–40,000 per month. Engine wear, fuel system maintenance, and maintenance, and exhaust repairs are constant. Breakdowns cost riders cost riders a full day's income.

GreenTech's solution: E-tricycles have 90% fewer moving parts than ICE vehicles. Monthly maintenance drops to ₦5,000–8,000. Battery health is monitored remotely at swap stations — riders are alerted before failure, not after.

MONTHLY MAINTENANCE REDUCTION **70–80%**

The Integrated GreenTech Model

- **Solar Energy** powers swap stations at near-near-zero marginal cost — the cheapest cheapest energy source in Nigeria
- **Local Battery Manufacturing** reduces import dependency and creates a domestic supply chain for clean energy storage
- **Battery-as-a-Service** removes the ownership barrier and creates a recurring recurring revenue stream that funds infrastructure expansion
- **PAYG Digital Platform** enables lease-to-own with no collateral — making clean transport accessible to the lowest-income riders

→ **GreenTech does not ask riders to choose between clean and affordable. We engineer the model so that clean IS the affordable choice — at every stage of ownership.**

The Technology Advantage: Beyond Lithium

BATTERY INNOVATION

40–60%
Cost reduction vs lithium-ion — zinc-air and sodium-ion batteries directly reduce transport COO

96%
Recyclability of zinc — a circular economy material available across sub-Saharan Africa

Zero
Thermal runaway risk — zinc-air and sodium-ion are inherently safer than lithium in high-temperature climates

Local
Raw material sourcing — zinc and sodium are available in Africa, reducing import dependency and supply chain risk

Lithium-Ion

THE INCUMBENT — COSTLY & RISKY

Cost per kWh	$150–200
Key raw material	Cobalt (DRC-dependent)
Thermal runaway risk	High — fire hazard
Recyclability	40–50% (complex)
Africa raw material availability	Very Low
Supply chain dependency	China / DRC
COO impact	High battery cost

Lithium-ion is the global default but **not fit for Africa** — cobalt dependency, fire risk in hot climates, and high cost make it the wrong choice for last-mile transport.

Zinc-Air

GREENTECH CHEMISTRY 1 — SAFE & RECYCLABLE

Cost per kWh	$80–100
Key raw material	Zinc (Africa-abundant)
Thermal runaway risk	None — inherently safe
Recyclability	96% — fully circular
Africa raw material availability	High
Supply chain dependency	Regional / Local
COO impact	40% lower than Li-ion

Zinc-air is **ideally suited to Africa's climate and supply chain** — safe, recyclable, and sourced regionally. GreenTech's first production chemistry for stationary and mobile storage.

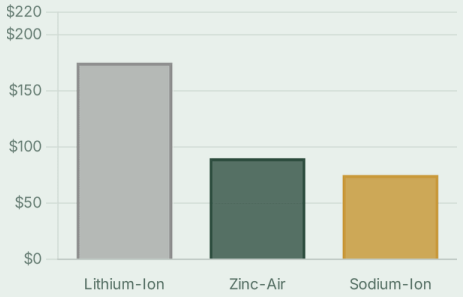
Sodium-Ion

GREENTECH CHEMISTRY 2 — CHEAPEST & SCALABLE

Cost per kWh	$60–90
Key raw material	Sodium (from salt — abundant)
Thermal runaway risk	Very Low
Recyclability	80%+ (improving)
Africa raw material availability	Very High
Supply chain dependency	Minimal
COO impact	55–60% lower than Li-ion

Sodium-ion is the **lowest-cost battery chemistry** available today — using salt as a raw material. GreenTech's second production chemistry, targeting mobile transport packs.

COST PER KWH COMPARISON (USD)



The Africa Advantage

GreenTech's dual-chemistry approach uses a **single production line** — switching between zinc-air and sodium-ion by changing only the chemistry mix. This halves capital expenditure and doubles production flexibility.

A 40–60% reduction in battery cost is not a marginal improvement — it is the difference between clean transport being unaffordable and being the obvious choice for every last-mile operator in Nigeria.

Battery-as-a-Service: Removing the Ownership Barrier

GREENTECH BUSINESS MODEL

How the Battery Swap Model Works

1 — Rider Buys Vehicle — Not Battery

E-tricycle purchased at **₦1,680,000** — 65% cheaper than a petrol keke. No battery included. Lease-to-own with zero upfront collateral.

2 — Daily Swap at GreenTech Station

Rider arrives at a solar-powered swap station. Depleted battery removed, **fully** removed, **fully charged battery installed in under 3 minutes.** Pay ₦7,000 and go. and go.

3 — GreenTech Manages the Battery Pool

Depleted batteries charge from solar panels at the station. **3 batteries per vehicle per vehicle in rotation** — one in use, one charging, one in reserve.

4 — Rider Earns More, Spends Less

₦4,000/day more disposable income versus petrol. **Lease repaid from daily savings daily savings** — the vehicle pays for itself without any external financing. financing.

5 — Local Batteries Power the Whole System

Battery pool supplied by **locally manufactured zinc-air and sodium-ion cells** — **cells** — reducing import dependency and creating a captive market for domestic domestic production.

THE CORE INSIGHT

"When you separate battery ownership from vehicle ownership, clean transport becomes the cheapest option — not the most expensive."

65%

Reduction in e-tricycle purchase price by removing battery from sale

₦4,000

Daily disposable income gain per rider vs petrol petrol (₦11,000 → ₦7,000)

100%

Solar-powered swap stations — zero grid dependency, zero fuel cost

GreenTech's 5 Revenue Streams from One Platform

Battery Swap Fees
₦7,000/day
Per rider, per day. Predictable, recurring, cash-based revenue

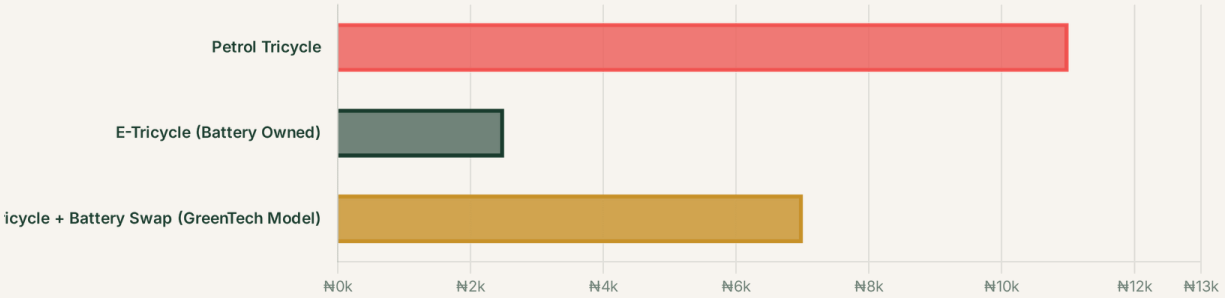
Lease Repayments
₦800/day
Daily lease instalment deducted from from swap fee payment

E-Charging Fees
₦7,000/350km
For non-swap EV users at GreenTech stations

PAYG Insurance
₦300/day
Micro-insurance bundled into daily swap payment

Data & Analytics
B2B
Fleet performance data sold to logistics and insurance partners

Daily Operating Cost: Petrol vs Battery Swap



Climate outcome: Every rider who switches from petrol to battery swap avoids **5.0 tCO_2e per year** — at a net saving of ₦4,000/day. Climate action and poverty alleviation in the same transaction.

The Climate Dividend: What COO Reduction Delivers

IMPACT & CO-BENEFITS

15,000+
tCO_2e avoided / year
(Year 3, 3,000 e-tricycles)

2,400+
Direct & indirect jobs
across 5 cities

90%
NOx & PM2.5 reduction
per vehicle replaced

100K+
Households with improved
energy & transport access

100%
Solar-powered swap
stations — zero grid

Four Co-Benefits of Commercial Clean Transport Adoption

Carbon Emissions Reduction

5 tCO_2e

Avoided per vehicle per year. **3,000 e-tricycles eliminate 15,000 tCO_2e/year.**

Urban Air Quality

90%

Major reduction in NOx and PM2.5 — **3,000 clean vehicles transform air quality** for daily daily commuters.

Energy Independence

₦7.6B

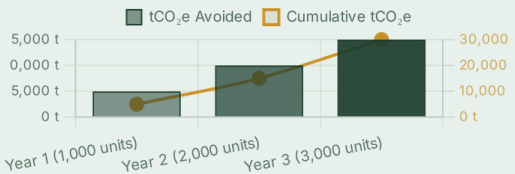
Annual petrol import cost avoided via solar-charged swapping — **redirects spending to the domestic clean energy economy**.

Job Creation & Livelihoods

2,400+

Rider livelihoods protected, technicians trained, swap stations operated, and **supply chain jobs** in battery assembly and solar installation.

PROJECTED ANNUAL CO_2E AVOIDANCE (TCO_2E)



Source: GreenTech projections. 5 tCO_2e/vehicle/year vs petrol baseline. 1,000 units Y1 → 2,000 Y2 → 3,000 Y3.

THE COMMERCIAL CLIMATE LOGIC

1. **COO is reduced** — battery swapping cuts daily operating cost from ₦11,000 to ₦7,000
2. **Adoption accelerates** — riders switch because it is commercially rational
3. **Scale creates infrastructure** — swap stations become the backbone of a clean network
4. **Climate outcomes are automatic** — 15,000 tCO_2e/year avoided as a co-benefit of commercial success
5. **The model is self-funding** — revenue funds further expansion without ongoing subsidy

The GreenTech thesis: Climate action does not require sacrifice. When clean energy is cheaper, adoption is commercially inevitable — and the climate dividend follows.

CALL TO ACTION

Make Clean Transport Cheaper, Not Just Greener.

Transport climate action plans will only succeed when they when they are built around **commercial viability** — not just not just technical possibility. The technology exists. The The market exists. What is missing is the **business model that model that bridges the two.**

GreenTech Energy Solutions is building that bridge — one — one battery swap station, one e-tricycle, and one rider at rider at a time.

Ms. Azizat Mohammed

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Our Ask — Three Actions for Stakeholders

01

FOR GOVERNMENTS & REGULATORS

Align Policy Incentives with Cost of Ownership Reduction

Tax exemptions on e-vehicles are not enough. Governments must must **incentivise battery-as-a-service models**, provide duty waivers on waivers on battery components, and create enabling frameworks for frameworks for PAYG lease-to-own financing — so that clean transport is not just available, but affordable.

02

FOR INVESTORS & DEVELOPMENT FINANCE

Fund Battery Infrastructure, Not Just Vehicles

The investment gap is not in e-tricycles — it is in the **swap station station infrastructure** that makes them viable. DFIs and impact investors must treat battery swap networks as critical transport transport infrastructure, with the same financing terms as roads and roads and charging points.

03

FOR DEVELOPMENT PARTNERS & RESEARCH INSTITUTIONS

Support Local Battery Manufacturing in Africa

Africa cannot decarbonise its transport sector while remaining 100% dependent on **imported lithium-ion batteries**. Development partners must support local manufacturing of alternative chemistries — zinc-air and sodium-ion — that use Africa's own mineral resources and reduce import dependency.

04

FOR ALL STAKEHOLDERS

Measure Success by Rider Income, Not Just Emissions

Transport climate action plans must track **cost of ownership reduction** as a primary metric alongside carbon savings. When clean transport puts more money in a rider's pocket every day, adoption accelerates — and the climate outcomes follow automatically.

*"At GreenTech, we believe the **best climate policy is a profitable business model.** When clean energy is the cheapest option, no one needs to be persuaded to choose it."*

— Ms. Azizat Mohammed, COO, GreenTech Energy Solutions Ltd.