

# Project Summary



## Nigeria Solar Electric Car Urban Taxi Carbon Project

### 1. Project Overview

The **Nigeria Solar Electric Car Urban Taxi Carbon Project** aims to transform urban mobility in selected cities in Nigeria by replacing **1,000 gasoline-powered taxis** with **Esse Mobility Purity Solar Electric Vehicles (EVs)**, which run entirely on solar energy. This initiative directly addresses Nigeria's dual challenges of **rising urban emissions** and **fossil fuel dependency**, while creating a scalable model for sustainable transport in Sub-Saharan Africa.

#### Key Components:

- **Technology:** Solar-powered EVs with zero tailpipe emissions.
- **Scale:** 1,000 vehicles deployed across Lagos, Benue, Enugu, Kano and Abuja.

- **Funding:** Fully financed by **Esse Mobility** (\$18,000/vehicle).
- **Revenue Model:** Carbon credit sales under the **Tyndall Carbon Standard** (aligned with **AMS-III.C** for vehicle efficiency).
- **Co-Benefits:** Health, economic inclusion, and energy security.

## 2. 2. Why Approve and Finance This Project?

### A. Critical Climate Impact

- **Emission Reductions:**
  - **Baseline:** Gasoline taxis emit **9.24 tCO<sub>2</sub>e/year/car** (40,000 km/year, 10 km/L efficiency, **2.31 kgCO<sub>2</sub>e/L emission factor**).
  - **Project:** Solar EVs reduce emissions to 0 tCO<sub>2</sub>e/year/car.
  - **Annual Reductions:** **9,240 tCO<sub>2</sub>e/year** (1,000 cars).
  - **5-Year Impact:** **46,200 tCO<sub>2</sub>e** (net after 10% buffer pool).
- **Alignment with Global Goals:** Supports Nigeria's **NDC commitment** to cut emissions by 20% by 2030 and aligns with **SDG 13 (Climate Action)**.

### B. Economic and Social Co-Benefits

#### 1. Health Improvements:

- Eliminates tailpipe emissions, reducing respiratory diseases (e.g., COPD, asthma).
- **Quantified Impact:** **Saves 20 DALYs/year** (0.02 DALYs/car) valued at \$5,000/DALY (WHO).

#### 2. Economic Inclusion:

- **Drivers:** **Receive 10% of carbon revenue** (\$2,491/year/driver) for 5 years.
- **Jobs:** 200+ jobs in solar infrastructure maintenance and EV servicing.

#### 3. Energy Security:

- Reduces Nigeria's gasoline imports by **4 million liters/year** (\$0.5M/year saved).

### C. Financial Viability

- **Carbon Revenue:**
  - **Price:** \$30/tCO<sub>2</sub>e (market-aligned).
  - **5-Year Revenue:** **\$1.45M** (carbon credits + \$5/tCO<sub>2</sub>e co-benefit premium).
- **Cost Recovery:**
  - **Upfront Cost:** \$18M (non-refundable, fully covered by Esse Mobility).
  - **Operational Costs:** 5% O&M, 7.5% Tyndall fees, 4% insurance (fully budgeted).
- **Profit Sharing:**
  - **Esse Mobility (70%):** \$785k profit to fund future expansion.

- **Government (28%):** \$314k to reinvest in urban sustainability.
- **Zeco (2%):** \$22k for local community projects.

#### 4. Risk Mitigation

- **Technology Risk:** Partner with Lagos Solar Inc. for reliable charging infrastructure.
- **Market Risk:** 60% carbon credits pre-sold via forward contracts (\$25 floor price).
- **Adoption Risk:** Driver training + 10% revenue incentive ensures uptake.

#### 5. Scalability and Replicability

- **Model for Africa:** Successful implementation can scale to 5,000 vehicles across Nigeria and neighboring countries.
- **Policy Alignment:** Complements Nigeria's Energy Transition Plan to achieve net-zero by 2060.

#### 6. Validation and Transparency

- **MRV Framework:**
  - GPS tracking for vehicle usage.
  - IoT sensors on solar charging stations.
- **Third-Party Audits:** Annual verification by SGS for Tyndall compliance.
- **Community Engagement:** Grievance redress mechanism and gender equity targets (30% female drivers).

#### 7. Conclusion

The Nigeria Solar Electric Car Urban Taxi Project is a triple-win:

- **Climate:** Cuts 46,200 tCO<sub>2</sub>e over 5 years.
- **People:** Improves health, creates jobs, and uplifts drivers' incomes.
- **Economy:** Reduces oil imports and pilots a sustainable transport economy.

**Financing this project** unlocks a replicable blueprint for decarbonizing urban mobility in Africa while delivering measurable returns for investors, communities, and the planet.

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**Carbon Registry:** Tyndall Carbon Registry (Project ID: [Insert])

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