



# INVESTING IN NIGERIA'S ENERGY TRANSITION OPPORTUNITY

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## **Abstract**

Nigeria's Energy Transition Plan (ETP) was developed in 2021 with support from the COP26 Energy Transition Council (ETC) and served as the basis for President Buhari's commitment to net zero by 2060 at COP26 in Glasgow. Since then, the plan has been approved by the Nigerian Government Federal Executive Council. This document highlights an initial \$23 billion opportunity for financiers, donors, and other partners to contribute to the delivery of the Energy Transition Plan as the Government aims to secure a \$10 billion support package by COP27 in Egypt.

## A. Introduction

The Federal Government of Nigeria has developed its Energy Transition Plan on which it based its Net Zero commitment by 2060 at COP26. The Government is now working to achieve the following objectives ahead of COP27 in Egypt:

1. **Secure at least \$10 billion financing commitment** to kickstart the implementation of Nigeria's Energy Transition Plan by COP27.
2. **Original Equipment Manufacturers (OEMs) to commence local manufacturing/assembly of key technologies** such as solar panels, inverters, solar standalone systems, electric vehicles by 2025.
3. **Implement technical assistance for skill development and knowledge transfer** for the deployment of Electric Vehicles (EVs), establishment of a carbon market, and development of a just transition pathway beyond oil and gas.
4. **Play a leadership role by promoting a just, inclusive and equitable energy transition** in Africa.
5. **Support a conducive business and investment environment** for the energy transition.

## B. Committed to a Net Zero Pathway

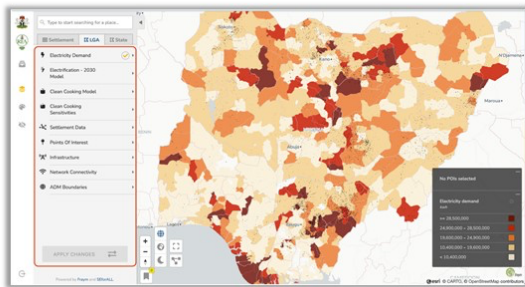
Nigeria is committed at the highest level to scaling up energy access for development along a net zero compliant pathway, and this was demonstrated at COP26 in Glasgow where President Buhari announced the 2060 target for achieving net zero. This followed years of aggressive power sector reforms across tariffs, metering, and payment discipline, which have now led to reaching cost reflective tariffs for the first time since privatization and increasing market collections by 75% in 2021. The Federal Government has also put several fiscal incentives and sector reforms in place to catalyze private sector activity, such as a tax holiday of an initial three-year period for companies involved in independent power generation. Additional reforms are now being implemented, such as the establishment of a Climate Change Fund as proposed in the approved 2021 Climate Act, and the alignment of Nigeria's Nationally Determined Contributions (NDCs) with the net zero pathway. The Energy Transition Implementation Working Group has also been set up to implement a just and inclusive transition along with key international

partners such as Sustainable Energy for All (SEforALL), the Global Energy Alliance for People and Planet (GEAPP) and the United Nations.

Nigeria has also led the way on the continent around data analysis through the development of its Energy Transition Plan (ETP) and its Integrated Energy Plan (IEP). The Nigerian Energy Transition Plan dimensions transition pathways across key sectors of the economy including Power, Residential Buildings, Industry, Transport and Oil & Gas, and highlights the scale of the effort required for Nigeria's transition to net zero by 2060. ~\$410 billion in incremental funding is required (and \$1.9 trillion in total) to fund the transition between 2021 – 2060, translating to an average of \$10 billion per annum in incremental funding over the period. This pathway offers significant opportunity for gas commercialization up to 2030 to end flaring, before gas is phased out until 2060. The pathway also offers an opportunity for net job creation of up to 840,000 jobs by 2060.

Nigeria has also developed a first of its kind integrated energy planning geospatial tool which has now been made publicly accessible for partners to leverage.

### The Integrated Energy Planning (IEP) tool provides sector transparency and investment-grade data for project development



- The Integrated Energy Planning tool incorporates **electrification, clean cooking and productive use** analyses, with community-level data on **household energy needs, ability and willingness to pay, proximity to infrastructure/services** etc.

- Aggregated investment opportunities include:
  - Optimal universal electrification will cost **\$22.9 Bn from 19.3Mn new household electric connections** from 5Mn solar homes systems, 8.9Mn mini-grid and 5.4Mngrid connections

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Source: Integrated Energy Plan Model

Link to Integrated Energy Planning Tool/Summary: <http://nigeria-iep.sdq7energyplanning.org/> and Link to Demo Video: <https://www.youtube.com/watch?v=D2ApkVvEov0>

The World Bank has demonstrated confidence in Nigeria’s ambitions, with investments in the Nigerian power sector of over \$2 bn over the last five years, including \$350 million for the Nigeria Electrification Project (NEP), \$750 million for the Power Sector Recovery Operation (PSRO), \$486 million for the Nigeria Electricity Transmission Project (NETAP) and \$500 million for the Distribution Sector Recovery Program (DISREP). The Bank is also preparing to scale up commitment to the Nigerian energy transition with an additional \$1.5Bn of financing for the NEP (\$750Mn) and PSRO (\$750Mn), while considering other opportunities, including:

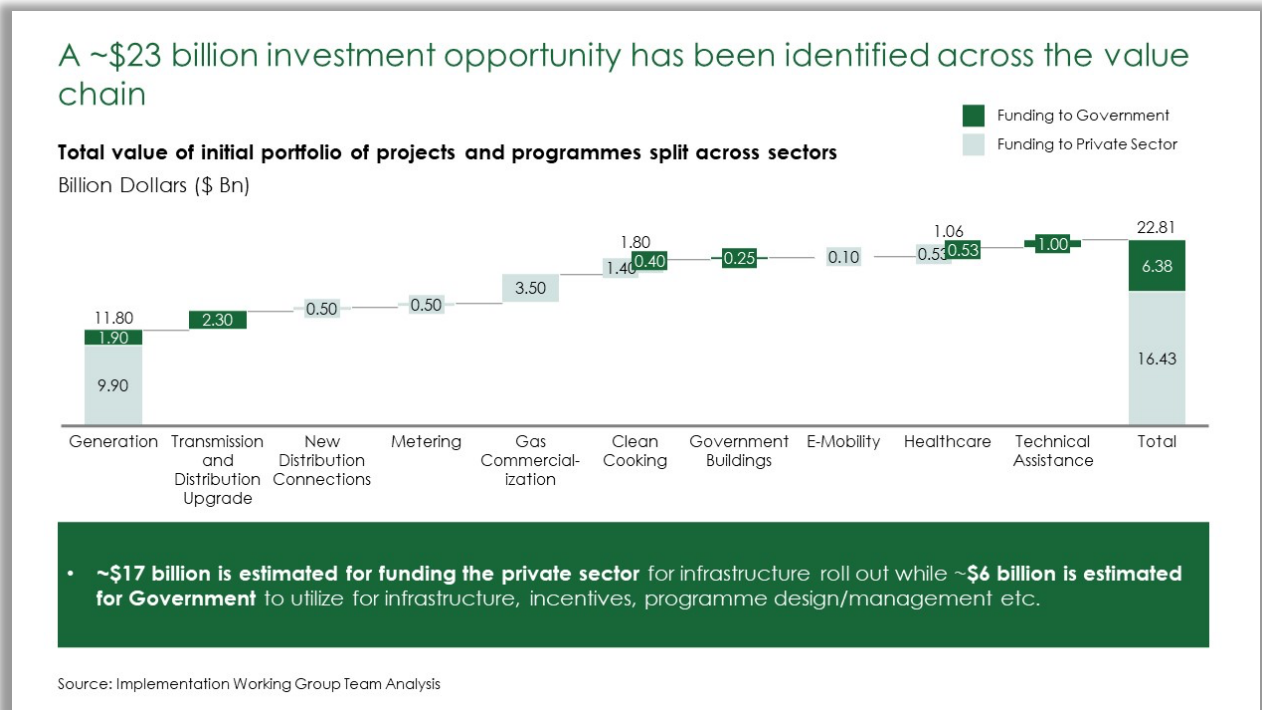
- Large scale financing of hydropower
- Facilitation of solar PV market
- Unlocking Nigeria’s Carbon Capture, Utilization and Storage (CCUS) potential

This new commitment will serve as the first partner contribution towards achieving the \$10 billion target by COP27. Nigeria will also look to build on its partnership with the U.S. Government as part of the Clean Energy Demand Initiative (CEDI), Net Zero World Initiative (NZW) and USAID’s Power Africa programme.



## C. Investment Opportunities

A \$23 billion investment opportunity has been identified across a portfolio of projects/programmes to give partners options to select from towards securing the \$10 billion support package ahead of COP27 in Egypt. The portfolio reflects opportunities identified across the value chain, with projects and programmes identified in generation, transmission and distribution (infrastructure upgrade and new distribution connections), metering, gas commercialization, clean cooking, government buildings, e-mobility, healthcare and technical assistance.



Provision of up to \$2 billion of guarantees and de-risking instruments will further incentivize private sector activity at scale for the delivery of these projects and programmes, including up to \$1 billion for generation, \$300 million for transmission and distribution, \$500 million for gas commercialization, \$150 million for clean cooking and \$50 million for healthcare.

Details on the projects in the portfolio above have been included here:

Sector	Projects	Expected Impact	Support Required
Generation (On-Grid)	<b>Combined Cycle generation (CCG) programme:</b> conversion of 5 large-scale gas power plants in phase 1	<ul style="list-style-type: none"> <li>CO2 savings of at least 12.4 million tons per annum</li> <li>3,500MW of additional power capacity</li> </ul>	<b>\$1.4 Bn</b> Financing for <b>private sector</b>

<b>Generation (Interconnected)</b>	<b>Interconnected mini grids programme:</b> Deployment of interconnected and isolated minigrid solutions, starting with Kano Electricity Distribution Company and subsequent roll out to other distribution companies' grid	<ul style="list-style-type: none"> <li>• 88,000 jobs creation</li> <li>• Increased renewable energy penetration –greening the grid</li> </ul>	<b>\$2.3 Bn</b> Financing for <b>private sector</b>
<b>Generation (Decentralized)</b>	<b>5 million solar projects:</b> Support private distributors in deploying solar home systems and mini grids spread across geopolitical zones to electrify 5 million homes by 2023	<ul style="list-style-type: none"> <li>• 5 million new household connections</li> <li>• 25,000 metric tons of Carbon emissions reduced</li> <li>• 200,000 SMEs powered</li> <li>• 250,000 jobs creation</li> </ul>	<b>\$8.1 Bn</b> Financing for <b>private sector</b> (\$6.2 Bn) and <b>Government</b> (\$1.9 Bn for subsidies)
<b>Transmission and Distribution Upgrade</b>	<b>Presidential Power Initiative Implementation:</b>	<ul style="list-style-type: none"> <li>• Improved central grid reliability and stability</li> <li>• Unlock &gt;11GW of power to end users</li> </ul>	<b>\$2.3 Bn</b> Financing for <b>government</b> to upgrade infrastructure
<b>New Distribution Connections</b>	<b>Expansion of distribution networks</b> to new users and implementation of distribution <b>Performance Improvement Plans (PIPs)</b>	<ul style="list-style-type: none"> <li>• Energy access expansion</li> <li>• Improved quality and reliability of electricity supply to end customers.</li> <li>• Reduction in ATC&amp;C losses</li> </ul>	<b>\$0.5 Bn</b> Financing for <b>private sector</b> to expand distribution grid to new customers
<b>Metering</b>	<b>National Mass Metering Programme (NMMP):</b> Bulk procurement of meters and Meter Data Management systems	<ul style="list-style-type: none"> <li>• Energy access expansion.</li> <li>• Increase in collection</li> <li>• Reduction in electricity theft and increased market liquidity.</li> <li>• Improvement in network monitoring capability and strengthening the local meter manufacturing sector in Nigeria</li> <li>• Create &gt;500,000 jobs</li> </ul>	<b>\$0.5 Bn</b> Financing for <b>private sector</b> to procure and rollout infrastructure
<b>Gas Commercialization</b>	<b>Nigeria Gas Flare Commercialization Programme:</b> Detailed programme design of up to 89 individual projects; Programme management and implementation; and Carbon capture study and programme design	<ul style="list-style-type: none"> <li>• Reduce Nigeria's emissions by ~13 million tons of CO2 per year</li> <li>• Potential annual revenues/ GDP Impact around ~ US \$ 1 billion/annum</li> <li>• Over a 1.5 –2-year period, the NGFCP could generate approximately 300,000+ direct and indirect jobs</li> <li>• Elimination of gas flaring</li> </ul>	<b>\$3.5 Bn</b> Financing for <b>private sector</b>
<b>Clean Cooking</b>	<b>Convert about 30 million homes from dirty fuels</b> (kerosene, charcoal and diesel) to LPG for cooking, biogas with personal home biogas digesters, community biogas digesters and electric alternatives	<ul style="list-style-type: none"> <li>• Create 1million jobs and impact up to 30 million homes</li> <li>• Achieve 120 million tons of CO2 emission reduction annually</li> </ul>	<b>\$1.8 Bn</b> Financing for <b>private sector developers</b> ( <b>\$1.4 Bn</b> ) to deploy solutions and build supporting infrastructure and <b>Government</b> ( <b>\$0.4 Bn</b> ) for subsidies

<b>Government Buildings</b>	<ul style="list-style-type: none"> <li>Project Phase 1 - Installation of solar + battery solutions for power supply at Large federal government buildings</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in diesel generator use and carbon emissions across government facilities and improved power supply (quantification of impact to be completed)</li> </ul>	<b>\$0.25 Bn</b> Financing for <b>government</b>
<b>E-Mobility</b>	<ul style="list-style-type: none"> <li>Purchase of electric fleet (buses) for pilot</li> <li>Pilot rollout of electric vehicle supporting infrastructure</li> <li>Logistics costs</li> </ul>	<ul style="list-style-type: none"> <li>Proof of concept and increased adoption of electric vehicles across commercial and residential segments</li> </ul>	<b>\$0.1 Bn</b> Financing for <b>Private Sector</b> for vehicle and charging infrastructure
<b>Healthcare</b>	<ul style="list-style-type: none"> <li>Powering 10,000 functional healthcare centers with 50MW of solar capacity</li> </ul>	<ul style="list-style-type: none"> <li>Clean sustainable power to 10,000 primary healthcare centers in Nigeria serving at least 100 million people</li> <li>104 GWh p.a. and 50 MWp total electricity supplied with installed solar PV capacity</li> </ul>	<b>\$1.06 Bn</b> Financing for <b>private sector</b> (0.53Bn) developers to deploy solutions, and <b>Government</b> (0.53Bn) for subsidies for O&M. High subsidy due to nature of project as social good

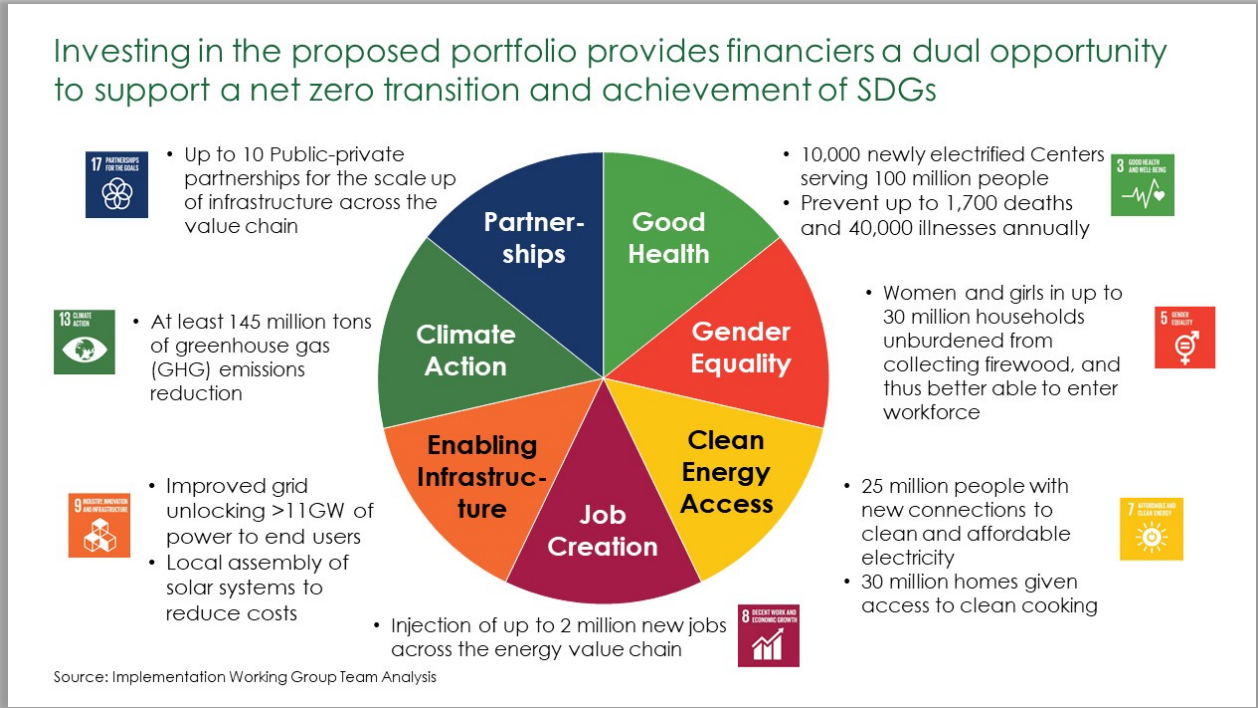
Technical assistance needs have also been identified to support the Government in designing policies and incentives that enable the sustainability of investments.

## Portfolio Overview: Technical Assistance

\$1 Bn

<b>Generation (Solar and New Technologies)</b>	<ol style="list-style-type: none"> <li>1 <b>Localization</b> of the solar value chain and <b>local currency facility/instrument</b> design and implementation</li> <li>2 <b>Interconnected/Isolated mini grids programme:</b> Programme design and financial modeling; Study on renewables integration into central grid; and implementation support</li> <li>3 <b>Powering SMEs – Energizing Economies:</b> Programme and financial incentive design and implementation</li> <li>4 <b>Powering Healthcare and Education:</b> Financial modelling and implementation Planning; Implementation Management</li> <li>5 <b>Hydrogen adoption:</b> Programme, policy and incentive design and implementation support</li> </ol>
<b>Grid Transmission, Distribution and Metering</b>	<ol style="list-style-type: none"> <li>6 <b>Distribution sector recovery program:</b> Programme design and implementation mgt., Data mapping of distribution network</li> <li>7 <b>Nigeria Electricity Transmission Project:</b> Programme design and implementation mgt., Data mapping of transmission network</li> <li>8 <b>National Mass Metering Programme (NMMP):</b> Programme mgt. support, Data mgt., Programme and financial incentive design</li> </ol>
<b>Gas</b>	<ol style="list-style-type: none"> <li>9 <b>Gas Commercialization and LPG deployment:</b> Programme/framework design and implementation management</li> </ol>
<b>Transport</b>	<ol style="list-style-type: none"> <li>10 <b>Electric mobility roadmap for Nigeria:</b> Traffic study, Infrastructure layout analysis and design, policy and incentive design</li> </ol>
<b>Markets and Enabling Environment</b>	<ol style="list-style-type: none"> <li>11 <b>Economy Transition:</b> Assessment of non-oil sectors to transition the economy and government revenues and programme roadmap development and implementation support</li> <li>12 <b>Establishment of a carbon trading market:</b> Programme design and implementation support</li> <li>13 <b>Revision of Nationally Determined Contributions</b></li> </ol>

Investing in the proposed portfolio provides financiers a dual opportunity to support a net zero transition and achievement of the Sustainable Development Goals (SDGs), including Health (SDG3), Gender (SDG5), Energy (SDG7), Economic Empowerment (SDG8), Enabling Infrastructure (SDG9), Climate Action (SDG13) and Partnerships for the Goals (SDG17).



### D. Next Steps

The evidence-based net-zero compliant energy transition pathway in Nigeria, as showcased, offers up investment opportunities across the value chain in multiple sectors, regions, and industries in Nigeria. The project pipeline showcased here, is complemented by the catalytic support sought for strategic de-risking of evolving sectors, and capacity building for the creation of new markets.

Additional investment opportunities will emerge as new clean energy sectors evolve, accelerated by the technical assistance support to nascent sectors like electric mobility, green hydrogen, etc. The current market ready pipeline will be further bolstered as clean energy markets deepen, and market confidence grows.

The Federal Government of Nigeria’s commitment to a robust, timely, just, and inclusive energy transition focuses on jobs, growth, and sustainability as it seeks support for its net-zero by 2060 ambition.