



AFRICAN DEVELOPMENT BANK GROUP

Nigeria Green Investment Plan

Industry Decarbonization Program

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May 2025

Context: Nigeria Green Investment (Decarbonisation) Program to Drive GDP Growth

- Nigeria's GHG emissions profile for the updated 2021 NDC was estimated at 347 MMTCO_{2e}, with Energy and Industry contributing >60% of total emissions.
- The NDC notes that without any action this could rise to 452.7 MMTCO_{2e} by 2030.
- Food Security, Housing, Circular Economy, Oil & Gas, Aviation, Mining etc, changes to various FGN policies will drive new emissions as the country seeks a target of >10% GDP by 2030.
- The Transformative Agenda for Nigeria is a strategic framework aligned with national visions such as **Nigeria Vision 2020**, **National Development Plan (NDP) 2021–2025** to position Nigeria as a globally competitive, inclusive, and sustainable economy, while meeting international commitments like the Sustainable Development Goals (SDGs) and NDC (Paris Agreement) and embedding the **National Action Plan on Gender and Climate Change**
- Activities across the decarbonisation technology pillars are required to ensure that the country attains low carbon development targets, whilst underpinning new ambitious growth targets.

Policy Context

- Nigeria has expressed a high level of ambition and commitment to reducing greenhouse gas (GHG) emissions. The key elements of Nigeria's approach include legislative frameworks, specific targets, and strategic plans aimed at managing climate-related risks.
- Nigeria's **updated Nationally Determined Contributions (NDCs) 2021**, commits to reducing emissions by **20% below business-as-usual (BAU) by 2030** unconditionally, with a conditional target of **47% below BAU**, contingent upon receiving international support. The NDC outlines emissions reduction objectives across multiple sectors, including energy and industrial processes.
- **In November 2021, Nigeria enacted the Climate Change Act (2021)** which establishes a framework for achieving low GHG emissions and aims for net-zero emissions between 2050 and 2070.
- **In August 2022, Nigeria released its Energy Transition Plan (ETP).** The plan was developed to serve as the pathway towards achieving the 2060 net zero target. It outlines strategies across five key sectors: Power, Cooking, Oil and Gas, Transport, and Industry. The ETP emphasizes the need for substantial investments—estimated at \$1.9 trillion—to transition towards cleaner energy sources while addressing the country's significant energy needs.
- **To achieve the targets set in the NDC, Nigeria developed a robust and comprehensive implementation plan, the NDC Implementation Framework (NDC-IF).** The NDC-IF aims to harmonize and align all key climate and development policies, targets, and plans, highlighting SDG linkages.
- Nigeria also developed a comprehensive **Long Term-Low Emission Development Strategy 2060 (LT-LEDS)** which outlines sectoral mitigation measures and development strategies that can be implemented to guide a transition to a low-carbon and sustainable economy. This includes specific strategies for the industrial sector.
- **The cement sector stands as the largest industrial emitter in Nigeria, contributing 6% of the country's total emissions.** This significant impact underscores the urgent need for decarbonization efforts in this sector.

Sectoral Context – Industrial Sector

- Several forms of pollution including the release of greenhouse gases (GHG), come from the industrial sector.
- In Nigeria, although the percentage of emissions contribution from industry is relatively low 4.56% in 2020, the sector still plays a huge role in the country's GDP contributing about 14.16 and 33.34% between 1988 and 2018 of the nation's total.
- The country's population is expected to reach nearly 401 million in 2050, making it the world's third most populous country, there is huge potential for industrial expansion in manufacturing, cement, and related sub-sectors that will substantially increase emissions

Mitigation Measures for the Industrial Sector

The following are four measures to take low-carbon pathways such as energy efficiency, renewable energy, and resource waste reduction, among others, for the industry sector:

- i. Developing and adopting Carbon Capturing, Utilization and Storage (CCUS) technologies, including pre- and post-combustion capturing processes.
- ii. Creating micro-distribution systems by creating clusters within areas for more accessible and straightforward energy utilisation.
- iii. Immediate shifting to the use of bioenergy sources and adoption of cleaner energy sources in production processes
- iv. Incorporating the renewable energy mix in the industry, at least by the energy mix in the power sector
- v. Using gas as a transition fuel in the short term to facilitate the establishment of low carbon energy development to address industrial needs.

Financing Needs

- NCCC's data of Nigeria's global stocktake revealed a total funding of \$17 billion from unconditional support for projects and technical assistance across seven NDC sectors.
- Additionally, conditional support from FGN budget allocation for NDC-focused projects amounted to approximately \$761 million during the 2015-2024 period.
- A significant funding gap of \$171 billion was identified based on the NDC Implementation Framework estimates.
- The cost breakdown for projects across different domains conducted. Energy projects make up about 21% of the actions, with significant investments aimed at transitioning to sustainable energy sources.
- **To align with decarbonization targets, Nigeria's cement, steel and chemicals sectors require substantial investments totaling \$9.2 billion by 2030.** This investment is broken into three categories:
 - ✓ **Brownfield investments:** \$3.9 billion, focused solely on upgrading existing cement and chemicals facilities.
 - ✓ **Greenfield investments:** \$4.7 billion, aimed at establishing new, low-carbon production facilities in both cement and steel production. **The potential for greenfield investments in cement and steel is particularly promising, driven by the need for capacity expansion to meet growing demand.**
 - ✓ **Ecosystem investments:** \$3.1 billion, directed towards supporting infrastructure and technologies that enable decarbonization across these sectors.
- Nigeria's NDC 3.0. is being updated and due in 2025. The NDC will Outline Nigeria's climate commitments for the period up to 2035 and beyond. It is a critical opportunity to increase ambition in mitigation and adaption and it is expected that will Nigeria

Enabling innovations for the implementation of strategies in the industry sector

- i. Effective stakeholder engagement.
- ii. Ensuring synergy among policies and institutions.
- iii. Enhanced research on catalysis technology that can facilitate and improve the production process at a lower energy consumption.
- iv. Syndicate financing and special intervention funds for the industry sector in implementing the LT-LEDS.
- v. Promoting the implementation of policies (e.g., National Renewable Energy and Energy Efficiency Policy (NREEEP) (2015), the National Energy Efficiency Action Plan (NEEAP) (2016), and the Sustainable Energy for All (SE4ALL) Action Agenda (2016)) and regulations on industry-related to energy efficiency, renewable energy, and emissions regulation.
- vi. Investing in innovative technology to locally produce more energy-efficient machines and equipment for use in the country at affordable prices.

Green Investment Opportunities

Nigeria's decarbonization solution ecosystem can benefit significantly from targeted financing offerings.

- Solar PV EPCrs: An estimated **\$1 billion** investment in setting up 5-10 green industrial parks could showcase the potential of solar PV in powering industrial processes and create a conducive environment for cleaner technologies.
 - Energy Efficiency Solution Providers: An investment of **\$2million** for policy advocacy and research studies, along with a **\$10 million** startup fund, could significantly boost the development of the energy efficiency ecosystem in Nigeria.
 - Alternative Fuel Providers: An estimated **\$0.5billion** is needed for policy advocacy and concessional finance, and **\$1 billion** for developing critical infrastructure for alternative fuel sources.
 - Material Substitutions: An investment of **\$2 million** for research and development initiatives and policy advocacy, and **\$0.5 billion** for developing critical infrastructure, is required to accelerate the adoption of material substitution technologies in Nigeria.
- By focusing on these strategic investments in cement, steel, and chemicals, Nigeria can significantly reduce its industrial emissions while simultaneously driving economic growth and diversification. The success of these initiatives will depend on effective collaboration between the government, private sector, and international partners to overcome financial and technical barriers and create a supportive ecosystem for industrial decarbonization.

Nigeria Green Investment Plan

- The Green Investment Plan, supported by AfDB aligns with CIF Industry Decarbonization Program (CIF Industry) to accelerate the transition of high-emitting industries in Nigeria to zero-carbon practice, support the development of clean technology supply chains, and unlock investments in low to net zero-carbon and climate-resilient business models and technologies
- **The aim of the Investment Plan is to leverage the transition of key industry sectors to drive low carbon development and new GDP growth through sectors like Cement, Iron and Steel, Food and Beverage, Oil and Gas, Construction and other aligned sectors, towards delivering sustainable, low-carbon practices with inclusiveness of communities through SDGs that embed gender, youth and marginalised.**
- Nigeria's CIF Industry Decarbonisation program seeks USD \$250 million to catalyse the mobilization of US\$50bn de-risked investments aimed at advancing the decarbonization pillars (low-carbon fuels and feedstocks, energy efficiency, industrial electrification, and carbon capture and utilization).
- Nigeria seeks investments for multiple sectors for large corporates, but also local content development for value chains in private sector, while government seeks to improve enablement for market-based incentives and the Ease of Doing Business.

Objectives of the Decarbonisation Strategy for Nigeria

The Objective is to raise Investments (finance, co-finance, grants, risk capital TA) of about \$40bn for Nigeria's Decarbonisation Program.

Nigeria's Industry Decarbonisation Program aims to drive new growth by stimulating new industry growth via these pillars;

- i. Low-carbon fuels and feedstocks
- ii. Energy efficiency in appliances and buildings
- iii. Industrial electrification, and
- iv. Carbon capture, utilization and storage

TA will be needed to build human and institutional capacity and design market-facing solutions for decarbonization pillars.

Prioritising Decarbonisation of Key Emitting Industries

- **Low Carbon Fuels using circularity** : Plastic waste – raw materials for FMCGs & electricity; biomass fuels (SAF), Bio-Energy Carbon Capture Storage incorporates producing energy from biomass, **feedstock substitute in cement reduces emissions by >30% etc**
- **Energy Efficiency – in industry** : zero emissions solutions include **clean cookstoves, solar boilers**, heat pumps, electric boilers for low-/mid- temperature heating with gas and hydrogen furnaces for high temperature heating should replace use of firewood.
- **Industrial Electrification** : ETP notes that **green/ blue hydrogen should scale from 2030**, and inefficient open cycle gas or hydro powered turbines must be replaced for emissions savings, that can provide significant SDG co-benefits. **Nigeria Energy Compact projects**--Energizing education, banks, health institutions, telecoms, states govt-- Enugu State decarbonized Electrification
- **Carbon Capture Utilization and Storage**: FGN gas flare commercialisation is a utilization aspect of carbon capture. A study of one flare site in Kwale, Nigeria indicates potential emissions savings of about 1.4million metric tons annually. If monetised under Article 6.4. – this could attract >\$100m

Component of the CIF-AfDB Support

- **Activity 1: Expand Renewable Energy Infrastructure and Modernizing Solar Power Grid Integration:** CIF resources could support the development of the full value chains of solar manufacturing in country with a view to link hydrogen- CCUS strategy and support development of advanced electricity grids capable of transmitting renewable energy. This would ensure a robust and efficient energy transition while meeting the growing demand for clean energy across industries.
- **Activity 2: Stimulating Green Value Chains:** localised green supply chains need reliable electricity to improve production, but the extremely low capacity of national grid requires innovative green technologies to provide captive power with targeted investments of 1.9trillion for industrial electricity, energy efficiency, solar PV by 2050 to meet net zero targets, reducing dependency on imports, enhance market resilience, and foster global competitiveness.
- **Activity 3: Technical Assistance and financial support for transitioning industries:** companies will need additional technical support for up/reskilling and training programs for workers to find new jobs and to absorb new workers in expanded opportunities that will result from decarbonisation. These strategies will include curriculum and training programs, partnerships with training institutions to provide industry-specific certifications and job placement services.
- **Activity 4: Establishing Blended Green Industrial Finance Mechanism/Fund:** CIF funding will facilitate the creation of a dedicated Blended Green Industrial Finance Mechanism/Program/Facility designed to crowd in finance from MDBs – AfDB, WB, IFC, IBRD, EIB, MIGA, GCF and other private finance – working via the CIF-AFDB partnership to fund projects through existing on-lending programs with commercial banks in Nigeria.
- By addressing these areas, CIF resources can significantly accelerate Nigeria's progress toward its climate and sustainable development goals, ensuring a just and inclusive transition while boosting economic growth and competitiveness, development of social safety nets, income support programs, and localized economic diversification strategies.

Recommendations

- Nigeria can strategically utilize Climate Investment Funds (CIF) resources to build enabling environments that enhance the likelihood of successful outcomes for the Industrial Decarbonization program, particularly in high-emitting industries and clean technology supply chains. This approach requires a multifaceted strategy that addresses policy, capacity, finance, infrastructure, innovation, and social aspects of the transition.
- **A critical starting point is strengthening Nigeria's policy and regulatory framework.** CIF support can be instrumental in developing and implementing a carbon pricing mechanism, as mandated by the 2021 Climate Change Act. This should be complemented by establishing clear regulations and standards for emissions reductions and the adoption of clean technologies in high-emitting industries. Creating incentives for private sector participation in industrial decarbonization efforts is equally important. These policy measures would provide a solid foundation for driving industrial decarbonization initiatives.
- **Capacity building and technical assistance** represent another crucial area where CIF resources can make a significant impact. Nigeria should focus on enhancing its technical capacity by supporting the development of a skilled workforce through training programs focused on clean energy technologies and industrial decarbonization processes. Providing technical assistance to government agencies and private sector entities can improve their ability to implement and manage decarbonization projects effectively.
- **Leveraging CIF funding to create innovative financial mechanisms and risk mitigation tools is essential for attracting private investment and scaling up decarbonization efforts.** Nigeria could establish a dedicated fund for industrial decarbonization projects. Developing risk-sharing mechanisms and credit enhancement tools can help attract private investment in clean technology supply chains. Additionally, providing concessional financing and viability gap funding for first-of-a-kind demonstration projects in high-emitting industries can catalyze innovation and technology adoption.

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- **Infrastructure development is a critical enabler for industrial decarbonization.** CIF resources can support investments in upgrading and expanding the power grid to accommodate increased renewable energy integration. Developing infrastructure for clean energy supply chains, such as green hydrogen production and distribution facilities, is also crucial. Supporting the creation of eco-industrial parks that facilitate shared clean energy infrastructure and circular economy practices can demonstrate the feasibility of integrated decarbonization approaches.
- **Fostering research and innovation is vital for developing context-appropriate solutions for Nigeria's industrial decarbonization challenges.** CIF funding should be allocated to establish partnerships between industry, academia, and research institutions to develop and commercialize low-carbon technologies suitable for Nigeria's context. Supporting pilot projects and demonstration facilities for emerging decarbonization technologies in key industries like cement, steel, and chemicals can accelerate the adoption of innovative solutions.
- **Decarbonization efforts can be greatly enhanced by developing a robust ecosystem of solution providers.** Key players in this ecosystem include Solar PV Engineering, Procurement, and Construction (EPC) companies, Energy efficiency solution providers, Alternative fuel suppliers, Material substitution companies specializing in low-carbon alternatives. Pumped hydro storage may present options for industrial parks and large-scale captive use.
- **Finally, ensuring successful outcomes requires prioritizing inclusive stakeholder engagement and just transition principles.** Nigeria could use CIF resources to develop comprehensive stakeholder consultation processes that involve industry, labor unions, local communities, and civil society organizations. Creating programs to support workforce transition, including reskilling and redeployment initiatives for affected workers in high-emitting industries, is crucial for maintaining social support for decarbonization efforts. Implementing social safeguards and community benefit-sharing mechanisms in line with CIF's just transition principles can help ensure that the benefits of industrial decarbonization are equitably distributed.

Thank You