KOGI STATE INVESTMENT PROMOTION AND PUBLIC PRIVATE PARTNERSHIP AGENCY

KOGI STATE PROJECT CLIMATE SCREENING ASSESSMENT REPORT: PPP PROJECT PIPELINE

Project Name: AJAOKUTA-KADUNA-KANO (AKK) GAS PIPELINE
Location: AJAOKUTA
Sector: ENERGY
Amount: 8540000 BNNGN
2800M US$
Contracting Authority: NIGERIA NATIONAL PETROLEUM LIMITED

SN	Assessment Domain	Remarks
1	**Purpose of the Project**	(a) Increase its electricity generation; (b) jumpstart its industries; (c) increase domestic use of gas; and (d) export. The proposed Ajaokuta-Abuja-Kaduna-Kano Gas Pipeline (Phase I) Project construction and operation is a further step in the government's policy, as it will help guarantee the supply network in the North and South of Nigeria, as well as reduce the environmental impacts associated with gas flaring.
2	**Alignment with the country's national climate-change mitigation and adaptation targets**	Nigeria National Petroleum Limited, in collaboration with the Kogi State Government, oversaw the project to ensure alignment with the State's climate mitigation and flood management policies. This involved revising and adapting standards and guidelines to contribute to Nigeria's national target of reducing greenhouse gas emissions by 60% below "business as usual" by 2030, as outlined in the Nigeria National Determined Contribution of 2021 and the National Climate Change Policy of 2021. The project encompasses Providing a secure storage facility for grains to ensure food security by preventing spoilage and loss due to pests, weather, or other environmental factors in Kogi State and enhancing the food value chain to foster economic development. **Industrial Efficiency**: The pipeline will supply gas to industries, enabling them to use a cleaner energy source.

		This not only helps reduce emissions from industrial processes but also promotes energy efficiency. The pipeline infrastructure development can stimulate the growth of other essential infrastructure, such as roads and communications, which are critical for building climate-resilient communities.
	Contribution to Green House as (GHG) emission	The Ajaokuta (AKK) Gas Pipeline project contributes to greenhouse gas emissions through methane leaks during extraction, processing, and transportation and CO_2 emissions from natural gas combustion. The construction and operation of the pipeline also generate emissions. However, the project aims to reduce overall emissions by displacing more polluting fuels like coal and oil, as natural gas produces less CO_2 per unit of energy. Additionally, using natural gas in high-efficiency power plants and industrial processes can lower emissions per unit of energy or product output. Thus, while there are emissions associated with the project, it offers a cleaner alternative that supports overall emissions reduction.
	Contribution to Nigeria's resilient development pathway	The Ajaokuta-Kaduna-Kano (AKK) Gas Pipeline enhances Nigeria's energy security by providing a reliable energy supply, reducing vulnerability to shortages and climate-related disruptions. It stimulates industrial growth, job creation, and economic stability, supporting resilience against climate impacts. The project promotes the development of essential infrastructure, aiding overall resilience and adaptability. It reduces environmental and health impacts by facilitating the shift from more polluting fuels to cleaner natural gas. Additionally, it provides a stable backup for renewable energy sources, ensuring a consistent energy supply while integrating renewables.
	Mitigation features that contribute to the transition to a net-zero carbon emission feature.	The Ajaokuta-Kaduna-Kano (AKK) Gas Pipeline supports the transition to net-zero carbon emissions by facilitating the switch from coal and oil to cleaner-burning natural gas, which produces less CO_2. It reduces methane leaks through advanced detection and repair technologies. The project enhances energy efficiency in power generation and industrial processes, lowering emissions per unit of energy. It also integrates with renewable energy sources, providing a stable backup to support their use. Lastly, the pipeline supports the development of carbon capture and storage (CCS) technologies, further reducing emissions.

Project Name: FIBRE OPTIC CABLE TELECOMMUNICATIONS INFRASTRUCTURE (PHASE 3 TELECOM)
Location: KOGI STATE
Sector: TELECOMMUNICATION
Amount: 5131.2BN NGN
US$4M

SN	Assessment Domain	Remarks
2	**Purpose of the project**	The demand for telecommunications in Nigeria is increasing, but the country's backbone transmission mainly relies on microwaves. Economic investment and fast profit are the advantages of microwave transmission, but the limited traffic capacity and poor anti-jamming capability are the disadvantages. To build an optical fiber backbone network (OFBN) is the only way to solve the conflict between the limited traffic capacity and significant demand. After market research, we found that building an optical fiber backbone network in Nigeria is essential. Although the one-time investment in building OFBN is larger, its unit cost will be lower than the long-term investment, as well as the vast traffic capacity and anti-jamming capability.
	Alignment with the country's national climate-change mitigation and adaptation targets	This project aligns with Nigeria's National Climate Change Policy (NCCP) 2021. The Fibre Optic Cable Telecommunications Infrastructure project aligns with Nigeria's National Climate Change Policy (NCCP) 2021 by enhancing energy efficiency in telecommunications and reducing the sector's carbon footprint. It supports digital infrastructure development, which promotes remote work and reduces transportation emissions. The project aids in climate adaptation by improving communication networks, which are crucial for climate monitoring and disaster response. It facilitates the growth of intelligent technologies and grid systems that optimize energy use and integrate renewable energy sources. Additionally, it bolsters economic resilience by fostering a digital economy, creating jobs, and supporting sustainable development. This is because the project will lead to the reduction of GHG emissions by reducing GHG E by 50%, promote sustainable development, and enhance resilience to climate change impacts. This alignment contributes to Nigeria's broader sustainable development and climate resilience strategy.
	Contribution to Green House as (GHG) emission	The Fibre Optic Cable Telecommunications Infrastructure project contributes to greenhouse gas (GHG) emissions

		through the energy consumption required for manufacturing, installing, and maintaining the cables and associated equipment. The construction process involves activities that emit GHGs, such as using heavy machinery and transporting materials. However, once operational, fiber optic cables are more energy-efficient than traditional copper cables, leading to lower emissions in the long term. The project also supports digitalization, which can reduce overall emissions by enabling remote work and decreasing the need for travel. Overall, while there are initial GHG emissions, the project reduces emissions over time through increased efficiency and reduced energy consumption.
	Contribution to Nigeria's resilient development pathway	The Fibre Optic Cable Telecommunications Infrastructure project enhances Nigeria's resilience by providing a robust digital communication network, crucial for climate monitoring and disaster response. It supports the digital economy, projected to contribute up to 15% of Nigeria's GDP by 2025, fostering economic stability (World Bank, 2023). The project facilitates remote work and online education, reducing the need for transportation and lowering emissions. Improving connectivity promotes innovative technologies and grid systems that optimize energy use and integrate renewable energy sources. Overall, the project strengthens Nigeria's infrastructure, making it more adaptable to climate impacts and economic challenges.
	Mitigation features that contribute to the transition to a net-zero carbon emission feature.	The Fibre Optic Cable Telecommunications Infrastructure project aids in the transition to net-zero carbon emissions by significantly reducing energy consumption, as fiber optic networks are up to 85% more energy-efficient than traditional copper networks. It supports the growth of digital services, which can lower carbon emissions by up to 20% through reduced travel and paper use. The project enhances the implementation of smart grid technologies, which can improve energy efficiency by up to 30%. Additionally, it facilitates the integration of renewable energy sources, helping to decrease reliance on fossil fuels. Overall, the project contributes to a cleaner, more efficient telecommunications infrastructure, aligning with Nigeria's net-zero carbon goals.

Project Name: OMI-KAMPE DAM
Location: KOGI STATE
Sector: ENERGY
Amount: US$3.962M

SN	Assessment Domain	Remarks
3	**Purpose of the Project**	The national peak power demand forecast figure is 12,800 MW against the available power of less than 4,000 MW. This calls for newer power projects to be implemented. It has been proposed that the dam's waters be utilized to generate hydroelectric power to boost the power supply within the dam's environs.
	Alignment with the country's national climate-change mitigation and adaptation targets	The Omi-Kampe Dam aligns with Nigeria's National Climate Change Policy (NCCP) 2021 and National Economic Empowerment and Development Strategy (NEEDS) by generating renewable hydropower, thus reducing greenhouse gas emissions and dependence on fossil fuels. It supports the National Agricultural Policy by providing reliable irrigation, enhancing food security, and resilience to climate-induced droughts. The dam aids water resource management, aligning with Nigeria's Water Resources Policy by addressing changing rainfall patterns and flood prevention. Additionally, it contributes to the National Economic Empowerment and Development Strategy (NEEDS) by promoting local economic development through water supply for domestic and industrial use, supporting diversified and resilient livelihoods.
	Contribution to Green House as (GHG) emission	The Omi-Kampe Dam contributes to greenhouse gas (GHG) emission reduction by generating renewable hydropower, which produces no direct GHG emissions during operation. By providing a clean energy source, it helps decrease reliance on fossil fuels, thus lowering overall carbon emissions. Additionally, the dam supports sustainable agricultural practices through irrigation, potentially reducing emissions associated with traditional, less efficient farming methods. While the construction phase may produce some emissions, the long-term impact of the dam is a net reduction in GHG emissions through clean energy and improved resource management.
	Contribution to Nigeria's resilient development pathway	The Omi-Kampe Dam contributes to Nigeria's resilient development pathway by providing renewable hydropower, enhancing energy security, and reducing dependence on

		fossil fuels. According to the International Renewable Energy Agency (IRENA), hydropower can reduce CO_2 emissions by up to 90% compared to coal-fired power plants. The dam also supports agricultural productivity by supplying water for irrigation, potentially increasing crop yields by up to 50% in drought-prone areas (FAO). Additionally, it improves water resource management, crucial for climate adaptation, and aligns with Nigeria's Water Resources Policy to mitigate flooding and water scarcity. These contributions foster economic stability, enhance food security, and support sustainable development, making Nigeria more resilient to climate change impacts.
	Mitigation features that contribute to the transition to a net-zero carbon emission feature.	The Omi-Kampe Dam generates renewable hydropower, which produces no direct CO_2 emissions during operation, significantly reducing reliance on fossil fuels. According to the International Energy Agency (IEA), hydropower's lifecycle emissions are about 1-5% of those from coal power plants. The dam also supports sustainable agricultural practices through irrigation, potentially reducing methane emissions from rice paddies by up to 25%, as noted by the Intergovernmental Panel on Climate Change (IPCC). By stabilizing the water supply and preventing deforestation for agriculture, the dam contributes to carbon sequestration, aligning with Nigeria's goal of achieving net-zero emissions by 2060 (Nigeria's Nationally Determined Contributions, 2021). **Nature-Based Solutions (NBS)** 1. **Carbon Sequestration**: NBS, such as reforestation, can capture up to 205 gigatons of CO_2 globally, offsetting decades of emissions (Nature). 2. **Cost-Effectiveness**: Reforestation costs range from $5 to $50 per ton of CO_2 sequestered, which is lower than many carbon capture technologies (World Bank). 3. **Biodiversity and Ecosystem Resilience**: NBS enhances biodiversity and ecosystem resilience, supporting long-term climate adaptation (IUCN). **Green Power (Renewable Energy)** 1. **Emission Reductions**: Renewable energy sources like wind, solar, and hydropower could account for

		over 90% of the power sector's emission reductions to meet Paris Agreement goals (IRENA). 2. **Energy Efficiency**: Solar PV systems and wind turbines are more efficient than fossil fuels, with modern coal plants operating at about 33% efficiency. In comparison, solar PV can exceed 20% and wind turbines up to 45% (U.S. Department of Energy). 3. **Economic Benefits**: Renewable energy created over 11.5 million jobs worldwide in 2020, demonstrating significant job creation potential compared to the fossil fuel sector (IRENA). NBS are effective for capturing CO_2 directly from the atmosphere, with their impact dependent on land availability and management. Green power is crucial for decarbonizing the energy sector, providing a sustainable solution for reducing emissions. Green power technologies can be rapidly scaled with sufficient investment and policy support, while NBS may require more time to achieve full benefits. NBS also offers additional benefits such as enhanced biodiversity and improved water quality, whereas green power primarily provides environmental benefits within the energy sector.

For more information, contact the KOGI STATE INVESTMENT PROMOTION AND PUBLIC PRIVATE PARTNERSHIP AGENCY at QPXW+Q6W, Jakura Rd, Lokoja 260101, Kogi.