

ID Concern [reg.]	Category / Element	Risk Short Title	Description	Desired Outcome	Current Situation	Proposed Strategy	Risk (three-part) Statement			Current Risk			Response	Mitigating Action / Response				Manageability	Residual Risk	Risk Owner	Target Review Date	Close Date	Last Review Date		
							Cause	Risk Event [uncertainty]	Consequence	Probability	Impact	Score (PxI)		ID	Action	Action Owner	Due Date							Close Date	Notes
C00012	R2 Security / Language	Risks of Infrastructure Disruption in Modular Refineries and Mini-Grids Network	The proposed integration of Nigeria's power generation assets with modular refineries and mini-grids aims to enhance electricity reliability and distribution. However, the project faces risks such as vandalism, theft, sabotage, and insurgent activities, particularly in remote and conflict-prone areas. These risks could significantly delay construction, escalate maintenance costs, and disrupt both construction and operation.	To implement robust strategies that mitigate security risks, safeguard materials and equipment, and ensure uninterrupted construction and operational phases for modular refineries and mini-grids. Could Go Wrong? 1. Persistent vandalism or theft could inflate project costs and create delays. 2. Insurgent attacks or regional unrest may lead to project halts or resource diversion.	Energy infrastructure in Nigeria frequently faces challenges from vandalism, theft, and sabotage, especially in under-served or conflict-affected areas. The modular refineries and mini-grids project spans rural zones where security is often inadequate, and insurgent groups operate.	1. Stakeholder Engagement: Collaborate with local communities to establish trust and mutual benefits. 2. Security Measures: Deploy surveillance technology, security personnel, and fencing at project sites. 3. Risk Assessment: Conduct periodic reviews of political and social stability in project zones. 4. Policy Integration: Align with national and local security frameworks to bolster defense.	Inadequate security measures and high-value equipment in remote areas create vulnerabilities.	Acts of vandalism, theft, or insurgent attacks disrupt construction and operations.	Delays in project timelines, increased costs, and reduced energy reliability for urban and rural populations.	4	4	16	Mitigate	#1	Stakeholder engagement with local communities.	Harakat, Abubakr	13Mar25	Open	4	12	Harakat, Abubakr	14Mar26	Open	12Jan25 Vandalism, theft of materials or equipment, or sabotage of energy infrastructure, especially in remote areas, could delay construction or increase maintenance costs. Attacks by insurgent groups or unrest in certain regions could disrupt construction and operation of both modular refineries and mini-grids.	
C00017	C2 Market/Product	Fluctuating Local and Export Energy Demand Impacting Mini-Grid Viability	Energy mini-grids, particularly in rural areas, face challenges due to varying local energy demand. This inconsistency can undermine profitability and financial sustainability. Simultaneously, lower-than-expected demand for electricity exports to neighboring countries, despite established regional agreements like the West African Power Pool (WAPP), could diminish revenue projections and weaken the justification for large-scale investment.	Ensure mini-grids achieve financial viability through accurate demand projections, adaptive management strategies, and diversification of revenue streams, with effective cross-border electricity trade to support economic sustainability. Could Go Wrong? 1. Mini-grids may operate below capacity, leading to financial strain. 2. Reduced electricity export demand could hinder ROI and strain cross-border partnerships.	Efforts are underway to integrate Nigeria's power generation assets into modular refineries and a network of mini-grids. Rural areas are targeted for reliable electricity supply via renewable energy mini-grids, linked to the national grid. However, there is inherent uncertainty in local demand forecasting and export agreements, as highlighted in project documents	1. Conduct granular demand studies for rural mini-grids and export markets to align capacity with actual needs. 2. Introduce tariff structures and incentives that accommodate demand fluctuations. 3. Develop bilateral and multilateral agreements to secure export demand. 4. Use the PHC Service for continuous monitoring, risk assessment, and adaptive planning.	Inconsistent local energy demand and unpredictable export market dynamics reduce mini-grid efficiency and profitability.	Mini-grids may face prolonged underutilization, while export markets could fall short of anticipated demand levels.	Financial losses, strained project justification, and potential setbacks in achieving project goals of regional energy integration and sustainability.	3	3	9	Mitigate	#1	Make demand studies for rural mini-grids and export markets.	Harakat, Abubakr	13Mar25	Open	3	6	Harakat, Abubakr	19Sep25	Open	12Jan25 Fluctuations in local energy demand, especially in rural areas, could reduce the profitability of mini-grids, making them financially unviable. Lower-than-expected demand for exported electricity from neighboring countries could impact revenue projections and project justification.	
C00020	M4 Project Resourcing	Workforce Challenges for Modular Refineries and Mini-Grid Deployment	The successful deployment and operation of modular refineries and mini-grids rely heavily on a skilled workforce, including engineers, technicians, and other workers. Current gaps in expertise for these specialized areas may significantly impede progress. Additionally, the adoption of new technologies introduces the need for extensive training programs, which are costly and time-consuming. Addressing these challenges is crucial for ensuring the long-term viability and efficiency of the projects.	Establish a sustainable pipeline of skilled personnel to support modular refineries and mini-grid operations, minimizing delays and ensuring smooth technological transitions. Develop cost-effective training programs to upskill workers while maintaining budgetary constraints. Could Go Wrong? Delays in identifying or training skilled personnel could stall project timelines. Overburdened budgets from high training costs could lead to resource constraints, impacting other critical project components.	There is an existing shortage of skilled workers trained in operating and maintaining modular refinery and mini-grid technologies. Training programs are either unavailable or financially prohibitive for widespread implementation. Project stakeholders are exploring solutions, but no cohesive strategy has been established.	1. Partner with technical institutions and training providers to develop specialized programs. 2. Introduce apprenticeship schemes to provide on-the-job training. 3. Explore cost-sharing models with technology providers to subsidize training expenses. 4. Identify and incentivize skilled expatriate professionals to bridge the immediate skill gap. 5. Monitor training outcomes and refine programs for greater efficiency.	The workforce lacks specialized skills in modular refinery and mini-grid technologies due to limited exposure and training opportunities.	A shortage of trained personnel and high costs of training strain the project's operational and financial resources.	Project delays, increased operational costs, and potential compromises in the performance of modular refineries and mini-grids.	2	3	6	Mitigate	#1	Establish register of technical insitutions and training providers.	Umoh, Camillus	13Mar25	Open	2	3	Harakat, Abubakr	18Jul26	Open	12Jan25 Insufficient availability of skilled engineers, technicians, or workers for modular refineries and mini-grid deployment could slow down project progress. High costs of training personnel to operate and maintain new technologies could strain the project's budget.	

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C00022	C1 Feasibility/Business Case	Establishing Robust Maintenance and Asset Management Systems for Mini-Grids, Refineries, and Grid Infrastructure	The failure to implement effective maintenance systems and asset management plans for mini-grids, refineries, and grid infrastructure could lead to severe operational inefficiencies and system failures. Over time, neglected maintenance and poor asset management result in performance deterioration, increased operational costs, and reduced lifespan of critical infrastructure. This situation threatens energy security, economic viability, and reliability of essential services.	A well-structured, sustainable maintenance system and asset management plan are established to ensure the optimal performance, longevity, and cost efficiency of mini-grids, refineries, and grid infrastructure. Could Go Wrong? Delays or inadequate investment in maintenance and asset management could result in frequent equipment breakdowns, escalating costs, and loss of public confidence in the energy infrastructure.	Many mini-grids, refineries, and grid infrastructures are operational but lack comprehensive maintenance schedules and robust asset management plans. This has already led to sporadic inefficiencies and unplanned downtime, highlighting the need for a proactive strategy to address these gaps.	1. Develop and implement standardized maintenance protocols for all critical infrastructure components. 2. Establish real-time monitoring systems to track equipment performance and predict maintenance needs. 3. Train personnel on asset management best practices to mitigate obsolescence and prevent premature breakdowns. 4. Allocate adequate budgetary provisions for regular maintenance and upgrades. 5. Partner with industry experts and stakeholders to identify and address systemic challenges.	Lack of planning, investment, and expertise in developing and sustaining maintenance systems and asset management plans.	Equipment obsolescence or premature breakdown due to inadequate maintenance and poor asset management.	Reduced performance and reliability of infrastructure, leading to increased operational costs and compromised energy security.	3	3	9	Mitigate	#1	Implement standardized maintenance protocols for critical infrastructure.	Inyang, Etido	13Mar25	Open	3	6	Harakat, Abubakr	15May26	Open	12Jan25 Failure to establish robust maintenance systems for the mini-grids, refineries, and grid infrastructure could lead to deterioration in performance over time, resulting in high operational costs. Lack of proper asset management plans may cause equipment obsolescence or premature breakdowns.	
														#2	Train personnel on asset management best practices to mitigate obsolescence.	Inyang, Etido	13Mar25	Open							