



mainstream

Energy Solutions Limited

Our business is power



COMPANY BROCHURE

2024

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ABOUT US



Mainstream Energy Solutions Limited (MESL)

is a privately owned company incorporated and licensed for power generation in 2011. Our operations are governed by a proficient Board of Directors and an Executive Management entrusted with the oversight of the day- to -day operations of the Kainji and Jebba Hydro Power Plants (HPP).

Located in Niger State, the two hydro power plants stand approximately 100km apart with Kainji dam positioned upstream of Jebba. Commissioned as Nigeria's first Hydro Power Plant in 1968, Kainji HPP (KHPP) has an installed capacity of 760 megawatts (MW) while Jebba HPP (JHPP) commissioned in 1985, has an installed capacity of 578.4MW bringing their total installed capacity to 1,338.4MW.

When the KHPP and JHPP were concessioned to MESL in 2013, the total available capacity of both plants was 482MW. With committed and diligent effort through several rehabilitation projects, an additional 520MW was integrated elevating the total available capacity to 1002MW.

MESL collectively contributes more than 20% of the power supply on the national grid, thereby playing a pivotal role in meeting the energy demands of Nigeria.



Vision

To be the recognized performance leader of the electric power industry in Nigeria and beyond.

Mission

To generate and deliver electricity in a safe, reliable, efficient and most environmentally friendly manner.

Core Values

- Teamwork
- Responsibility
- Innovation
- Integrity
- Passion

Certifications & Memberships



9001 : 2015

Quality Management



14001 : 2015

Environmental Management



45001 : 2018

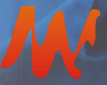
Occupational Health & Safety



West African
Power Pool



PLANT OPERATIONS



Kainji Hydropower Plant (KHPP)



Located on the course of the River Niger at Kainji gorge, New Bussa, the original development plan for KHPP provided for 12 generating units, with a projected total installed capacity of 960MW.

At the commissioning of the project in 1968, only 8 of the 12 generating units had been installed with a total capacity of 760MW, leaving four open pits for possible future expansion.

However, four decades later, most of the units went out of operational service and were de-rated due to inadequate maintenance. By 2013, at takeover by MESL, Kainji Hydropower Plant was at 0MW.

However, through a well-articulated strategic planning process, MESL brought the plant back up and also recovered an additional 260MW bringing the total available capacity to 520MW.



Kainji Hydropower Plant (KHPP)

Jebba Hydropower Plant (JHPP)



Jebba Hydropower Plant commenced commercial operations in 1983 but was officially commissioned on the 13th April 1985.

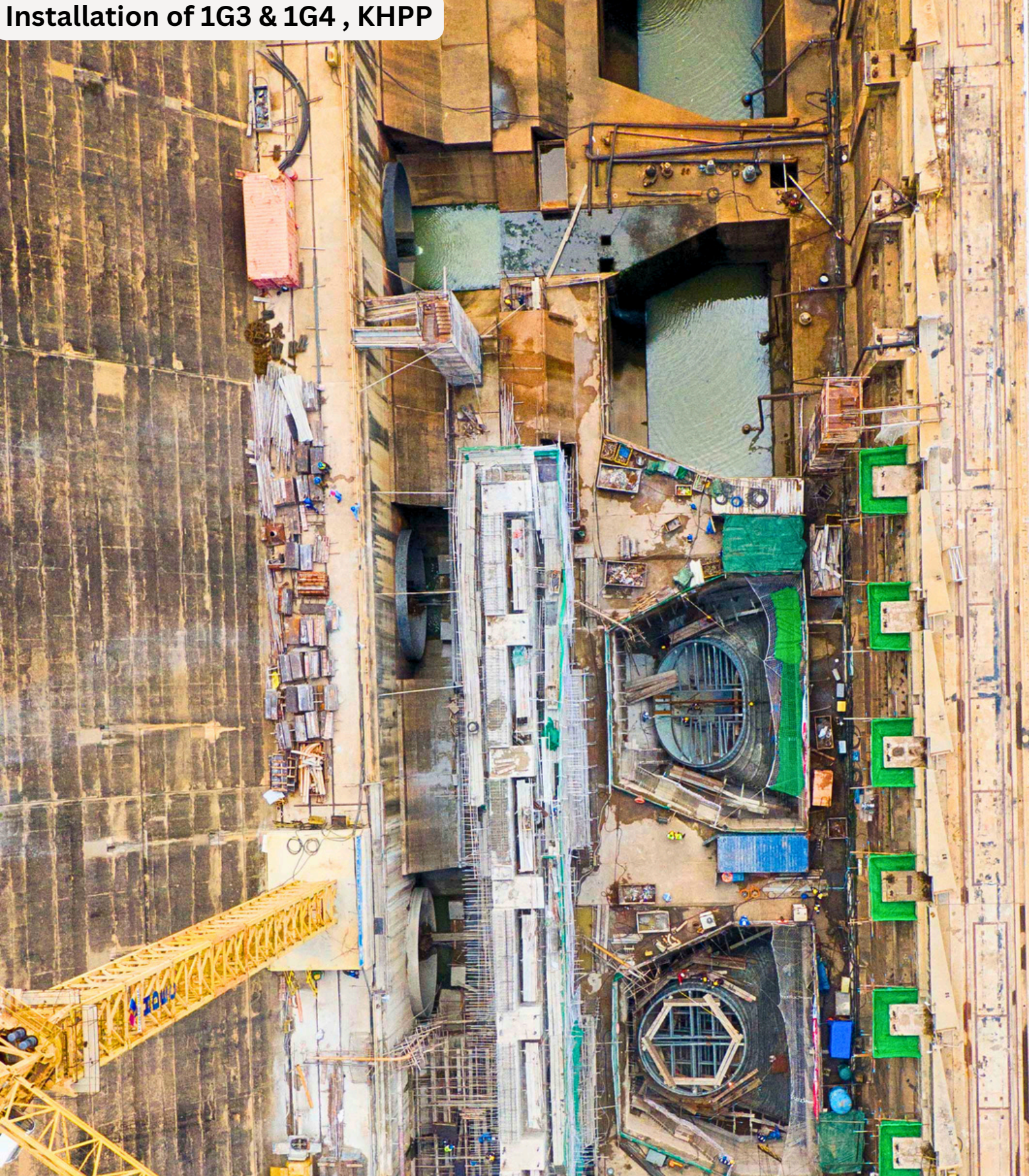
The plant has six (6) fixed- blade- propeller- hydraulic turbines of 96.4MW each adding up to a total installed capacity of 578.4MW.

Five (5) units were available for generation at the time MESL was taking over and the recovery of the sixth unit -2G6- which was affected by a fire incident on the 21st April 2009 has been completed.

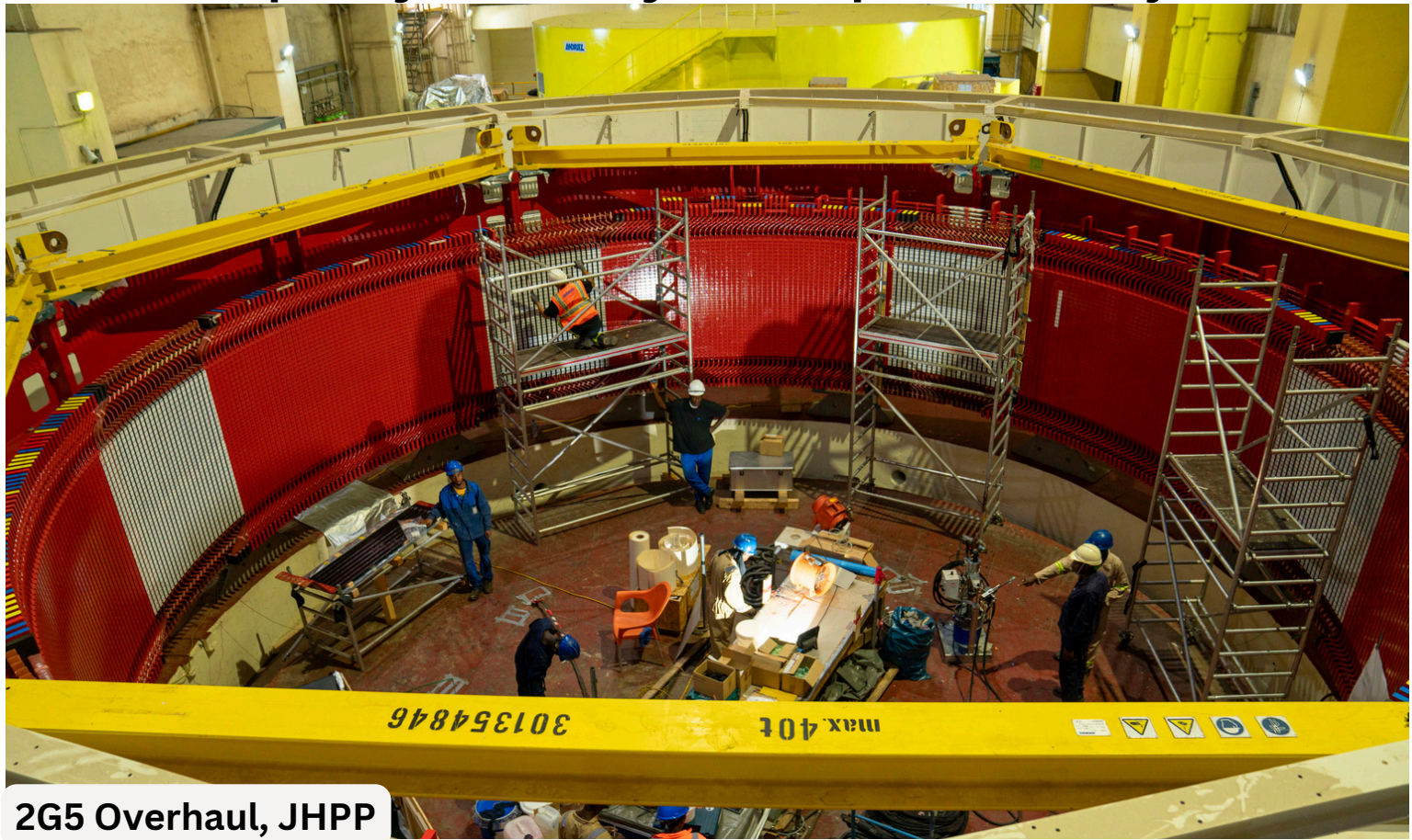


Jebba Hydropower Plant (JHPP)

Installation of 1G3 & 1G4 , KHPP



Capacity Recovery and Expansion Projects



2G5 Overhaul, JHPP

Kainji Hydropower Plant

Capacity Recovery Plan: the rehabilitation of four generating units: 1G5, 1G6, 1G7 and 1G12 with a combined capacity of 500MW has been completed and are in service. Unit 1G9, rated 80MW is undergoing rehabilitation with an expected completion date of March 2025. Unit 1G10 rated 80MW has been scheduled for rehabilitation.

Capacity Expansion Plan: The installation of two generating units-1G3 and 1G4 in two of the open pits has commenced. Upon completion in 2027, would provide an additional combined capacity of 220MW.

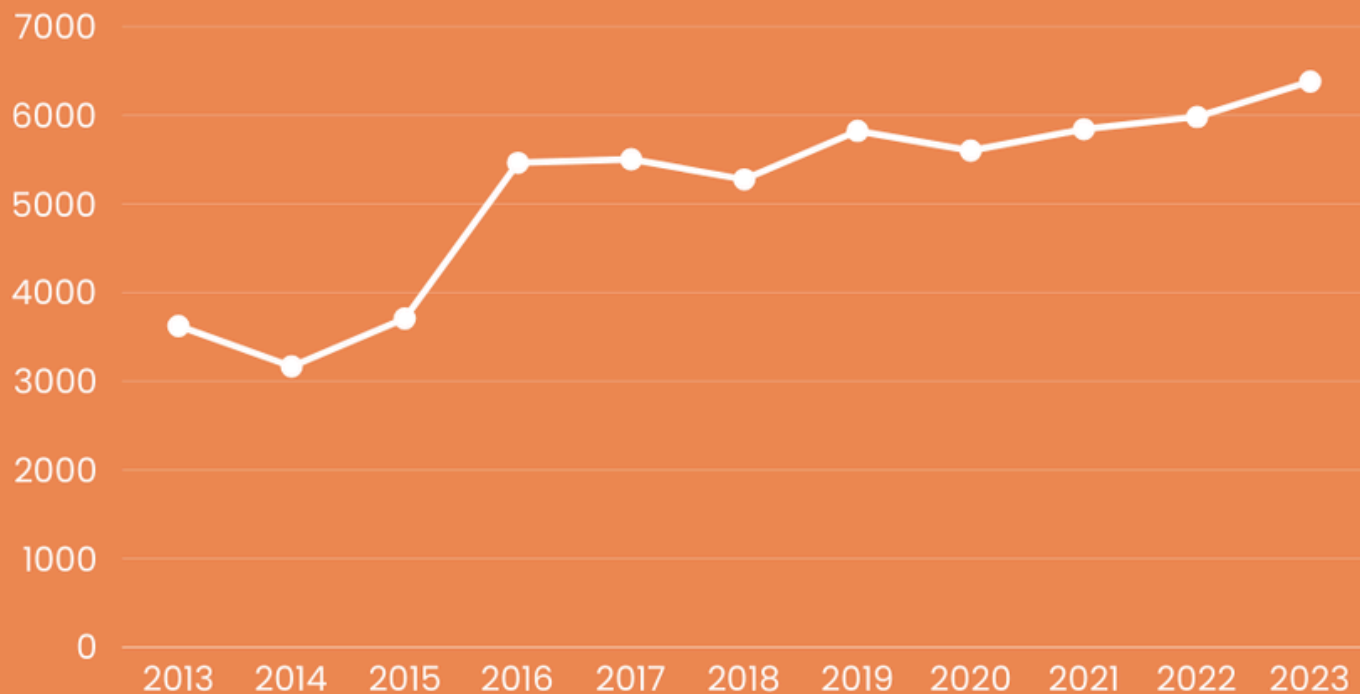
Jebba Hydropower Plant

The capacity recovery at JHPP involves the rehabilitation of Units 2G5 and 2G6 each with a capacity of 96.4MW. The work on 2G6 was completed in 2023 whilst the expected completion date for 2G5 is Q4 2025.

MESL Power Plants Annual Energy Output 2013-2023



MESL 10-YEAR GENERATION TREND 2013-2023



	Kainji HPP	Jebba HPP	MESL
Year	Energy Generated (GWh)	Energy Generated (GWh)	Total Energy Generated (GWh)
2023	3,414.54	2,965.87	6,380.41
2022	3,159.13	2,822.98	5,982.11
2021	2,824.65	3,018.65	5,843.30
2020	2,919.50	2,681.76	5,601.26
2019	2,964.72	2,859.19	5,823.91
2018	2,658.79	2,618.13	5,276.92
2017	2,697.31	2,805.87	5,503.18
2016	2,425.46	3,038.65	5,464.11
2015	1,602.37	2,106.22	3,708.59
2014	735.06	2,432.34	3,167.40
2013	965.86	2,657.57	3,623.43

OUR SUBSIDIARIES



PENSTOCK
ENERGY LIMITED
RC.1783500



hydropolis
Free Trade Zone
Creating Prosperity



hydropolis
Mining Nig. Ltd.



Quest Electricity Nigeria Limited
Lighting the nation

Penstock Energy Limited

Commissioned in 2022, MESL, through its subsidiary company-Penstock Energy Limited, won the bid for the 700MW plant and was handed the transfer certificate by the Bureau of Public Enterprise in January 2024.

Situated on the River Kaduna in Niger state, the plant consists of 4 turbines with a capacity of 175MW each, totaling 700MW.

The plant, which will contribute 2.64GWh of clean energy to the Nigerian grid per annum, commenced operations in May 2024.



PENSTOCK
ENERGY LIMITED
RC.1783500





Reservoir Capacity
10.4 Billion m3

Annual Generation Capacity
2.64 Billion kWh

Available Capacity
700MW

Construction
CCNEEC, China
Sinohydro, China

Turbines
4 Francis turbines (175MW*4)

Dam Type
Roller Concrete
Compacted Dam





Zungeru Hydropower Plant (ZHPP)



Hydropolis Free Trade Zone

Registered in 2022 with a vision to create a world class business hub in Africa, the Hydropolis Free Trade Zone (HFTZ) is an industrial park and smart city situated along the eastern banks of lake Kainji.

This secure state of the art park boasts of cutting edge facilities to cater to the needs of light and heavy scale manufacturing industries, providing them with 24/7 electricity at competitive rates for their operations.

Subscribers to the HFTZ would also enjoy high end health, transportation, residential and recreational amenities including the 5.3km formula 1 race track.

Hydropolis Mining Nigeria Limited

Hydropolis Mining Nigeria Limited is an offshoot of the Hydropolis Free Trade Zone. It was established in 2019 to explore and process the rich mineral resources in Niger state



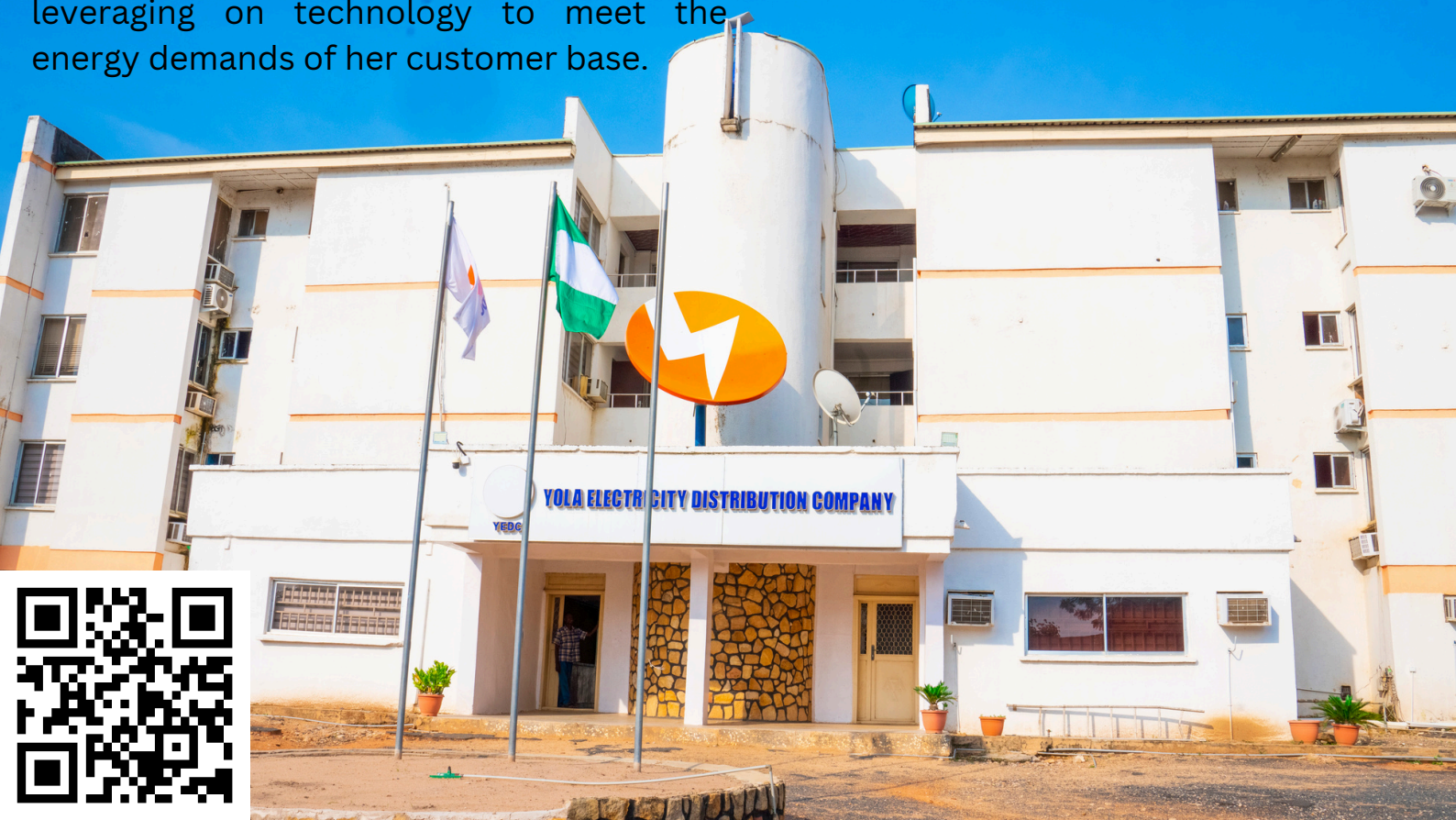
Visit our website here



Quest Electricity Nigeria Limited (QENL) took over the operations of **Yola Electricity Distribution Company (YEDC)** in January 2022 with the mandate to rebuild, rehabilitate and reinforce electricity distribution infrastructure of its catchment areas.

YEDC is licensed by the Nigerian Electricity Regulatory Commission (NERC) to distribute, and sell electricity to customers within Adamawa, Borno, Taraba, and Yobe states all in the northeastern part of Nigeria.

Since take over of YEDC by QENL, the company has witnessed a steady growth, leveraging on technology to meet the energy demands of her customer base.





Y4 Substation, Jimeta



mainstream ACADEMY

About Mainstream Academy

Mainstream Academy was established in 2018 as part of MESL's capacity development strategy. The Academy's strategic focus is to be recognized as the central learning hub and centre of excellence for capacity building in West Africa's power sector and beyond. The Academy provides courses designed in collaboration with professionals and subject matter experts in the energy sector.

Vision

To be the learning hub for capacity building in West African Power Sector.

Mission

To bridge the knowledge gap in the power utilities value chain through the provision of a bespoke training experience to meet individual and organization effectiveness as well as national development.

Stakeholders

- Engineering Associations
- Higher Institutions
- Universities and Polytechnics
- International Power Organizations
- Management Development Centres
- Federal and State Ministries of Education

Programmes

- Skills Acquisition Programmes
- Graduate Trainee
- Immersion Programmes
- Capacity Development Programmes (Technical and Soft Skills)
- Management Development Programmes



Graduate Management Trainee Program

 Technical Partnership



Kashimbila Hydropower Plant (KHP)

Kashimbila Hydropower Plant

In 2024, MESL entered into a service agreement with Kashimbila Power Limited (KPL) for the operations and maintenance of the 40MW Kashimbila Power Plant.

Situated on the Katsina-Ala river in Taraba State, the run-of-the-river plant is equipped with 4 Kaplan turbines of 10MW each with a reservoir capacity of 500 million cubic meters.

Constructed by SCC Nigeria, the multi-purpose dam also facilitates flood control, irrigation, and the provision of potable water to the region.





Corporate Social Responsibility

In consolidating our position as Africa's largest renewable energy company, Corporate Social Responsibility (CSR) is at the heart of what we do.

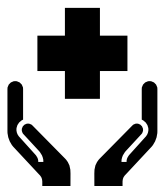
At MESL, we believe that organizations are better positioned to understand the needs of their host communities, and how best to meet them.

In line with this purpose, Mainstream Foundation was incorporated in 2016 as a vehicle to reach out to our host communities and actively contribute to their well-being in the four focal aspects of education, health, environment and community empowerment. This is paramount to the long-term benefits of allegiance, support and acceptance.

Education



Health



Environment



Community Empowerment



Education



Health



Environment

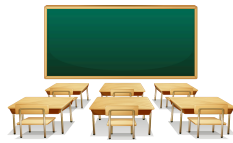


Community Empowerment



Mainstream Foundation's interventions in 7 years (2016-2023)

Education



Intervention in 71 schools 317 classrooms built



10,603 Desks & Chairs donated

Health



23 hospitals & clinics built 300 boreholes provided



26 medical outreaches

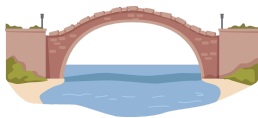


976 Cataract surgeries



2,012 Eyeglasses distributed

Environment

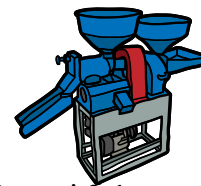


13 culverts & 7 bridges built

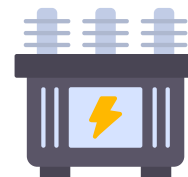


20,000 economic trees planted

Community Empowerment

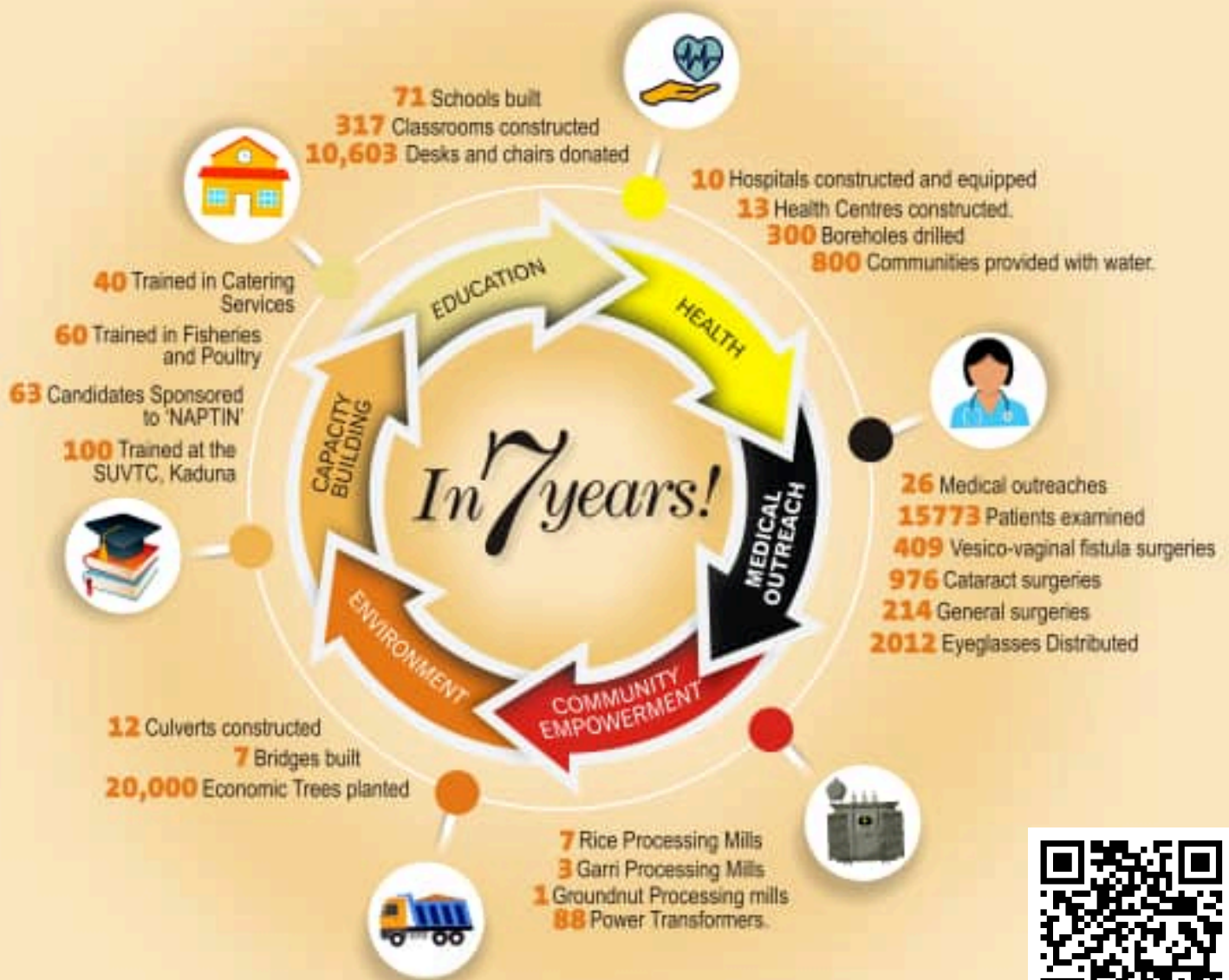


7 rice, 3 garri & 1 groundnut mills



88 Power transformers donated.


KEY INFOGRAPHIC HIGHLIGHTS







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