



**Presentation on Mainstream Energy Solutions Limited at the
World Bank Roundtable on the Future of Hydropower in West
and Central Africa**

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July 9, 2023
Speke Resort, Uganda



Evolution of the Nigerian Electricity Supply Industry

About Mainstream Energy Solutions Limited

Critical Success Factors

Post-Concession: Challenges & Mitigants

Financing Sources, Benefits & Drawbacks

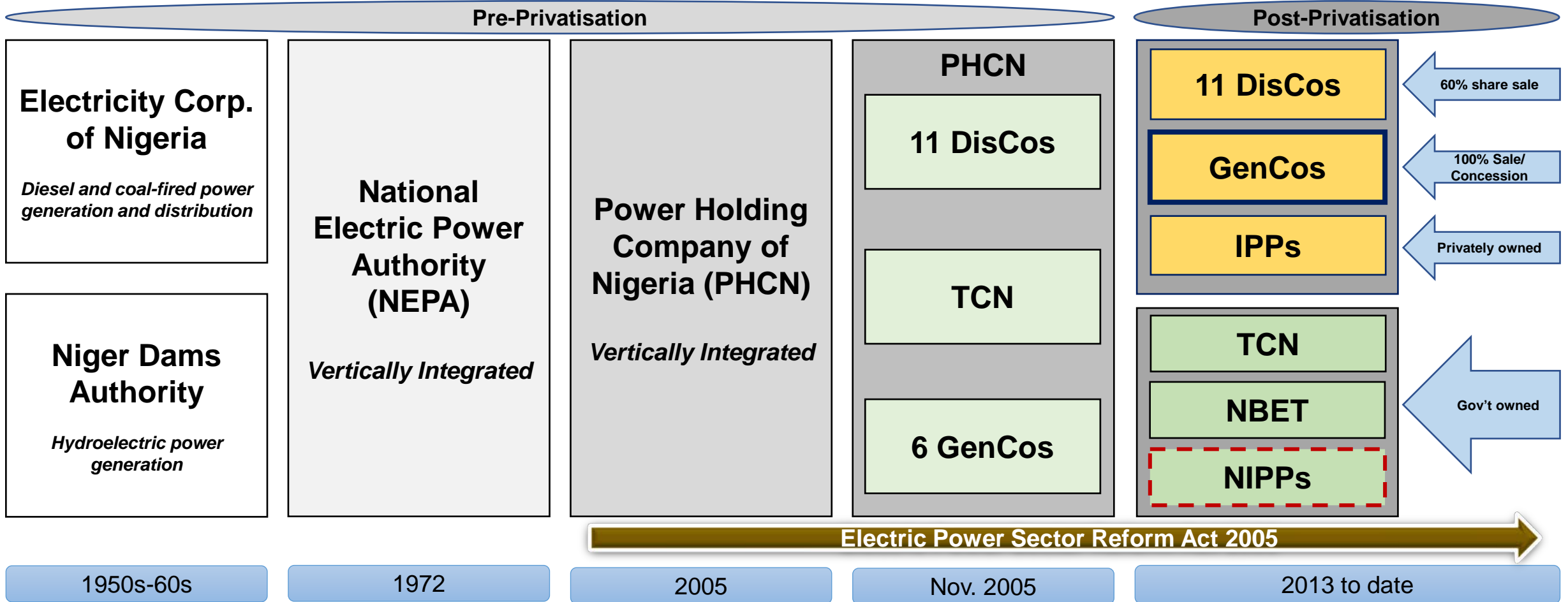
Our Growth Strategy

The Way Forward

Appendices

Evolution of the Nigerian Electricity Supply Industry

Nigeria's power sector is still at a nascent stage which creates ample opportunity for investments

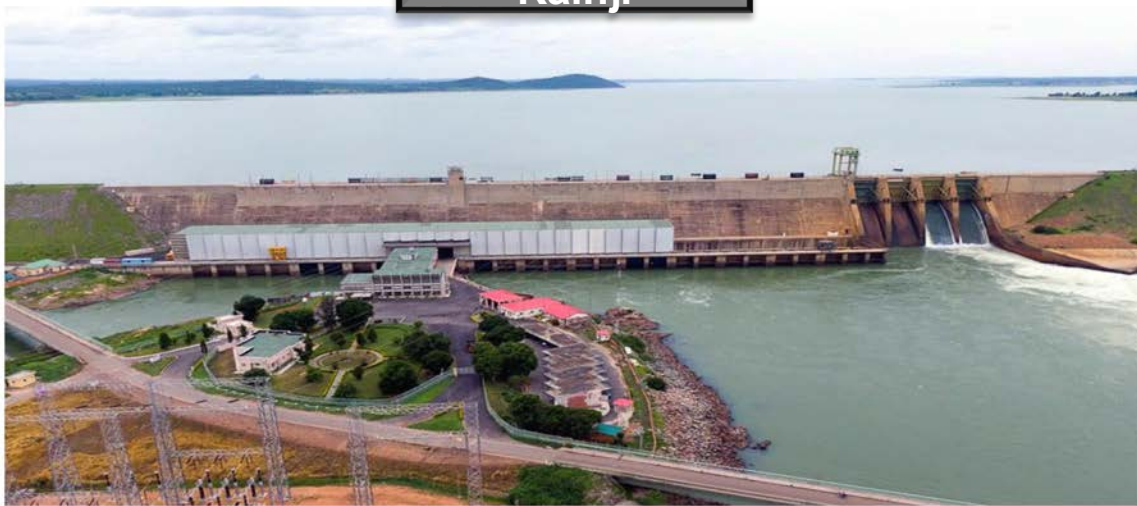


DisCos – Distribution Companies
GenCos – Generation Companies
IPPs – Independent Power Producers
NBET – Nigerian Bulk Electricity Trading PLC
NERC – Nigerian Electricity Regulatory Commission
NIPPs – National Integrated Power Projects
TCN – Transmission Company of Nigeria

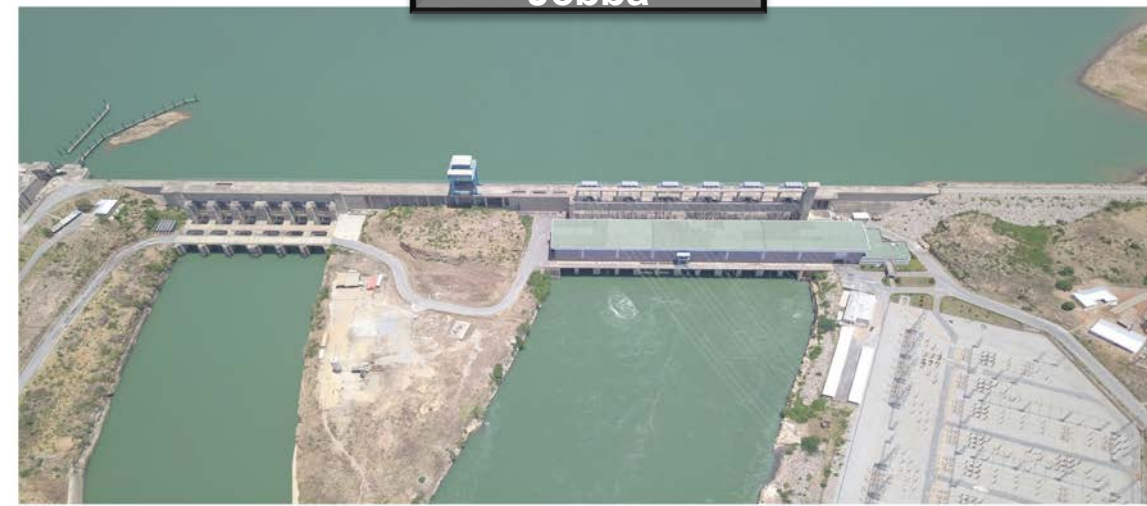
 Privatisation process commenced

Incorporated in 2011; acquired concession of Kainji & Jebba Hydro Power Plants in November 2013

Kainji



Jebba



	Kainji	Jebba
Years Commissioned	1968	1985
Installed Capacity	760MW <ul style="list-style-type: none"> ▪ 4 x 80MW (Installed 1968-69) ▪ 2 x 100MW (Installed 1976-77) ▪ 2 x 120MW (Installed 1978) ▪ 4 x empty pits (expansion in progress) 	578.4MW <ul style="list-style-type: none"> ▪ 6 x 96.4MW
Turbine Type	Kaplan (Variable Pitch)	Kaplan (Fixed Blade)
Reservoir Capacity	15 billion m ³	3.85 billion m ³
Available Capacity (2013)	0MW	460MW
Available Capacity (2022)	520MW	482MW

1,338.4 MW (Total Installed); 1,002 MW (Total Available)

Background

- Mainstream Energy Solutions Limited was incorporated in 2011 and licenced as a power generation company in 2013.
- The company was established for the purpose of participating in the privatisation of the Power Holding Company of Nigeria (“PHCN”) and is focused on contributing to national development by generating power in a safe, reliable and most environmentally friendly manner to support Nigeria’s industrialisation agenda.
- Upon taking over the operations at Kainji Hydropower Plant (Kainji HPP) & Jebba Hydropower Plants (Jebba HPP), the available capacity at the two power plants was increased by 542MW from 460MW to 1,002MW following an extensive Capacity Recovery programme at a cost of c. \$240mm fully equity-funded. MESL currently contributes approximately 20% of power generated to the National Grid.
- In a bid to maintain its standing as Nigeria’s leading power generation company and in pursuance of its mandate to be a recognised performer in Nigeria and beyond, MESL secured memberships with internationally renowned organisations such as the International Hydropower Association and partnerships with reputable utilities such as NIGELEC* (Niger Republic) and Volta River Authority (Ghana). In 2020, the World Bank and IHA adopted MESL as a case study on best practices in Operations & Maintenance (O&M) of hydropower plants.
- MESL is registered as a market participant with the West African Power Pool (“WAPP”), which grants it the opportunity to leverage the WAPP’s partnership agreements with foreign institutions such as the World Bank, Africa Finance Corporation, African Development Bank, USAID, etc.
- MESL is committed to operational efficiency, quality, healthy, safety and environment, and recently obtained three certifications in Quality Management Systems, Environmental Management Systems and Occupational Health & Safety from the International Organisation for Standardisation.

Historical milestones and achievements

2011 to 2013

- Incorporated as a power generation company.
- Won the bid for the concession of and Kainji HPP and Jebba HPP.
- Took over the operation of Kainji HPP & Jebba HPP from PHCN.

2014 to 2016

- MESL and RusHydro International commenced rehabilitation of Kainji HPP & Jebba HPP.
- Increased the available capacity of Kainji HPP from 0 to 440MW.
- Incorporated Mainstream Foundation with the corporate affairs commission (CAC) to drive community development initiatives

2018

- Incorporated Mainstream Academy to serve as a central learning hub and centre of excellence for capacity building in the West African Power Sector.

2019

- Executed contract for the rehabilitation of 96.4MW unit 2G6 at Jebba HPP, with Andritz Hydro, a globally leading provider of services for hydropower stations.

2020 to 2021

- Adopted by the International Hydropower Association and the World Bank as a case study on best practices in O&M.
- Acquired Quest Electricity Nigeria Limited, which completed the acquisition of Yola Electricity Distribution Company.
- Signed MOU with the Volta River Authority, Ghana for Capacity Building and Knowledge Exchange and with Société Nigérienne d’Electricité (NIGELEC) for co-development of power projects within West Africa and beyond.

2022

- MESL obtained the following ISO certifications: ISO 9001:2015 (Quality Management System); ISO 14001:2015 (Environmental Management Systems) and ISO 45001:2018 (Occupational Health and Safety).
- Announced as the preferred bidder for the concession of the Kashimbila 40MW Hydropower Plant.

2023

- Announced as the preferred bidder for the concession of the 700MW Zungeru Hydropower Plant.

Critical Success Factors

EXPERIENCED HYDROPOWER O&M

- Successfully operated Kainji and Jebba hydro powerplants (HPPs) and has been recognised and adopted by the World Bank and IHA as one of six case studies on global best practices in hydropower O&M
- Invested **\$240mm** to date in Capacity Recovery and Expansion Programme. Additional **\$26mm** in the recovery of Kainji Unit 1G9. **\$82mm** required to complete the expansion of Kainji Units 1G3 & 1G4 (220MW); which will increase the capacity at Kainji HPP to 980MW and combined installed capacity at Kainji and Jebba HPPs to **1558.4 MW**
- In addition, a consortium led by MESL has emerged as Preferred Bidder for the concession of the 700MW Zungeru and 40MW Kashimbila Hydropower Plant

1

FIRST MOVER ADVANTAGE

- Market leader in the hydropower space in Nigeria. It controls over 70% of Nigeria's hydropower generation and contributes annual average of 20% to the National grid.
- We have leveraged our position to influence policy and regulation to address critical challenges in the sector

2

EXPERIENCED BOARD & MANAGEMENT

- Excellent and dynamic management team with a combined experience of over 100 years in the power industry. The Board is well versed in both commercial and technical aspects of the power market and have extensive experience and competencies across the wide spectrum of the economy, in both the public and private sectors.

3

DEDICATED STAFF

- Strong and well motivated workforce with dedicated staff who live and breathe the vision and culture of the organisation
- Staff are beneficial holders of shares in the company, fostering a sense of ownership in the business

4

Critical Success Factors../2

WEST AFRICAN POWER POOL

- Registered market participant in the West African Power Pool, strategically positioned as a focal point of the WAPP's regional electricity market.
- Through this we will take advantage of the multilaterally-funded West Africa Northcore Transmission Interconnector Project which connects the power markets of Nigeria, Burkina Faso, Benin Republic, Niger Republic and Togo.

5

CORPORATE SOCIAL RESPONSIBILITY

- Established the Mainstream Foundation in 2016 which focuses on the 4 pillars of: **Education, Health, Community Empowerment and Environment** to support host communities
- The Foundation has executed over 560 CSR intervention projects at approximately ₦6bn (\$16mm) as of May 2023.
- Through these interventions, the company has built strong relationships with its host communities aiding effective project implementation and improved performance.

6

COMMITMENT TO QHSE

- The Company is dedicated to the highest standards of Quality, Health, Safety and Environment and has obtained three (3) ISO certifications, ISO 9001:2015 (Quality Management System); ISO 14001:2015 (Environmental Management Systems) and ISO 45001:2018 (Occupational Health and Safety)




7

GOVERNMENT RELATIONS

- With its proven track record and performance as the operator of Kainji and Jebba HPPs, MESL has built and sustained a strong relationship with the government

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Post-Concession Challenges & Mitigants

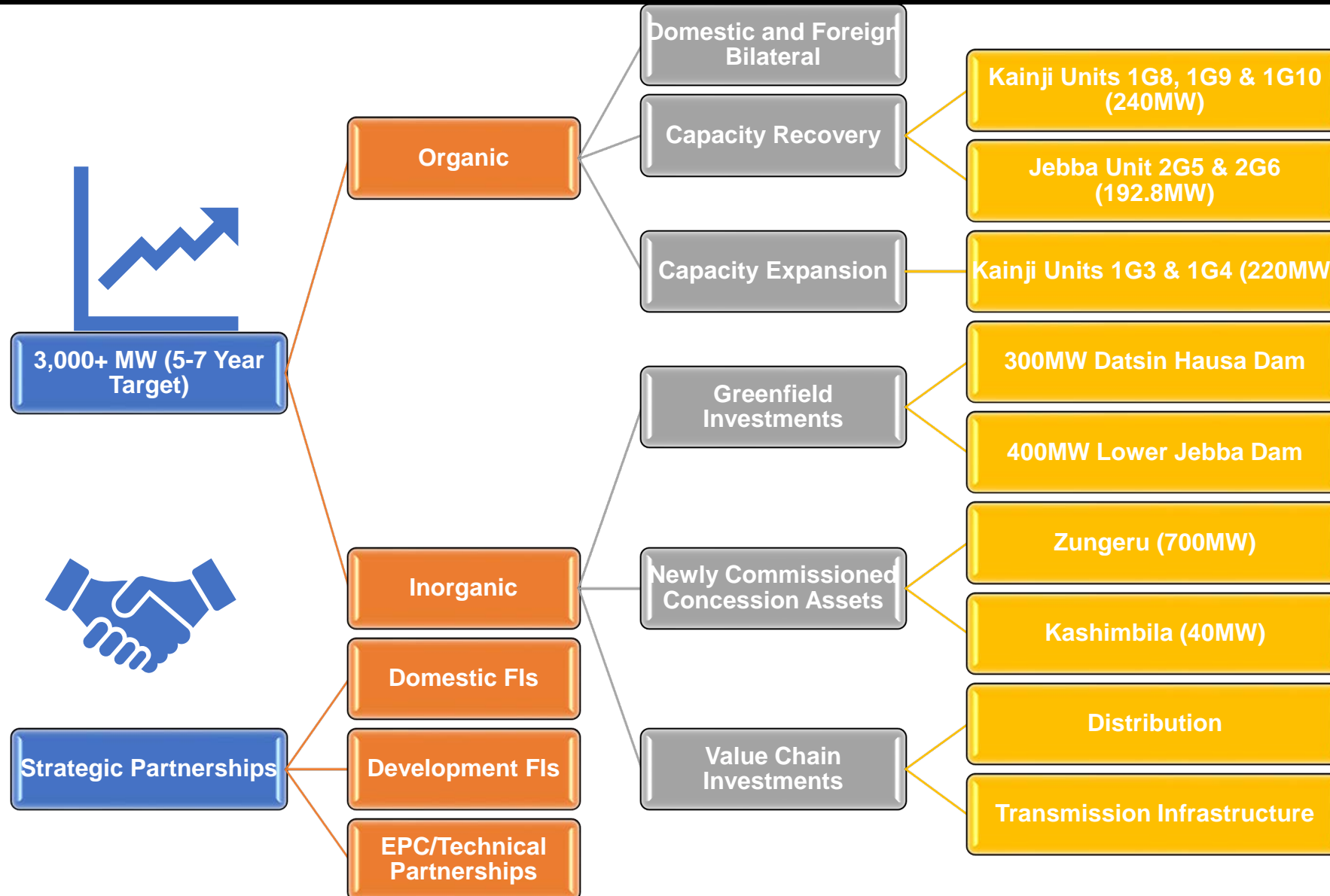
 Issue	 Challenges	 Mitigants
FX Exposure	<ul style="list-style-type: none"> ▪ Acquisition loan in USD with naira revenues and volatile currency regime ▪ Concession fees payable in USD with revenues earned in Nigerian Naira 	<ul style="list-style-type: none"> ▪ Conversion of USD loan to local currency and payment of debt to free balance for more expansion ▪ USD-denominated PPAs: Executed with Niger Republic and in discussions with Burkina Faso, Togo, etc.
High Receivables	<ul style="list-style-type: none"> ▪ Under single buyer market, MESL has been exposed to the liquidity constraints at the distribution end of the value chain 	<ul style="list-style-type: none"> ▪ Eligible Customer Regime introduced to allow generation companies sell direct to industrial customers consuming monthly average capacity of 2MW ▪ NERC partial activation of PPAs to free up capacity for sale to ECs and commence phasing out of single buyer model
Hydrology & Flood Control	<ul style="list-style-type: none"> ▪ Water resources management challenges; related to greater climate extremes and competing demands by other users 	<ul style="list-style-type: none"> ▪ Investment in Inflow Forecasting System/Operational Tool Software
Organisation Culture	<ul style="list-style-type: none"> ▪ Difficulty of the personnel retained from the PHCN to seamlessly adapt to the culture change process from public utility-orientation to private sector business-orientation 	<ul style="list-style-type: none"> ▪ Conducted Change Management Programme and sensitised staff on Professional Ethics and Code of Conduct

Financing – Sources, Benefits and Drawbacks

Traditionally, government sponsored financing has been the primary source of finance for most hydropower plants, however the extent to which this is still an effective method is limited. The growing shortage of public finance accompanied by an increased debt profile of the Nigerian government, suggests a need for more reliable sources of finance. Using the Jebba and Kainji plants as practical examples, the execution of the Capacity Recovery Plan which increased available capacity from 460MW to 1002MW was fully equity-funded. This evidences the need for hydropower projects to rely less on government funds and more on alternative sources of funding, as outlined below:

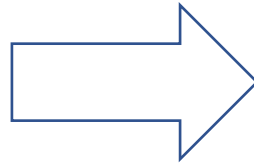
Source	Benefits	Drawbacks
Bank debt	<ul style="list-style-type: none"> Relative flexibility compared to other sources 	<ul style="list-style-type: none"> High interest rates environment Requires huge collateral
Equity	<ul style="list-style-type: none"> Shareholders tend to bring managerial or technical skills and experience. 	<ul style="list-style-type: none"> Limited private equity funding (MESL seeks to buck this trend by exploring new PE opportunities)
IFI/RFI Funding	<ul style="list-style-type: none"> Access to large sums of capital 	<ul style="list-style-type: none"> Country risk rating typically impacts investment appetite Tends to be dollar denominated hence a currency mismatch as revenues are largely in local currency Stringent conditions and red tape
Capital market	<ul style="list-style-type: none"> Helps acquire public credibility for the company Access to deeper pool of funding 	<ul style="list-style-type: none"> Relatively longer time-to-market Very few IPOs limits the pool of equity investors (recent listing of Geregu Power may suggest new trend)

Our Growth Strategy





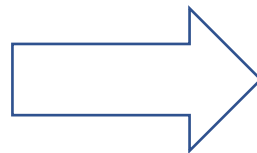
**Enabling Policy &
Business
Environment**



- Consistent and predictable regulation as well as an enabling business environment are fundamental to inspire investor confidence in developing markets.
- Policy & regulation should enhance and not stifle the business environment in order to have a sustainable market. Governments should be mindful of these in order to attract long-term financing.



**Flexible &
Innovative
Financing**



- Investors need to be more flexible, innovative & pragmatic, taking developing market dynamics into account when building their financing, risk models.
- Consider financing requirements for the entire value chain, such that the offtake becomes more viable and sustainable.
- The more investment is made in hydropower infrastructure, the easier the connectivity is and the more the tariffs will levelise and eventually close the financing gap.

Thank you for your attention!



mainstream

Energy Solutions Limited

Our business is power

MESL Investments and other Ventures

MESL has taken a strategic decision to expand its investment horizons across the value chain of the power sector, within Nigeria and beyond.



Mainstream Foundation

- Corporate Social Responsibility Vehicle



Mainstream Academy

- Capacity Building and Skills Acquisition



Quest Electricity Nigeria Limited

- Core investor in Yola Electricity Distribution Company, which distributes power to 4 states in the North-East of Nigeria



Hydropolis Investments Limited

- Developer of the Amfani Industrial Park and Smart City located approximately 15km from Kainji Dam



Kainji Aquaculture Resources Limited

- Established to develop the Fisheries & Aquaculture business along the Kainji Lake

CSR - Mainstream Foundation

Education



Community Empowerment



Environment



Health



Key highlights

 **N6bn** Total Spend by Mainstream Foundation

Education intervention projects

 **45**
Number of school Intervention programmes

 **127**
Number of Blocks built

 **248**
Total Number of Classrooms

 **6,600**
Chairs and Desks donated

Community empowerment projects


 **650**
Communities outreach

 **203**
Number of Boreholes drilled

 **10**
Food Processing Mills

Environment projects

 **5**
Number of Bridges built

 **8**
Number of Culverts built

 **60**
Number of Transformers

Health and infrastructure projects

 **10**
Number of hospitals built and equipped

 **17**
Medical outreach

 **1,712**
Eyeglasses donated

 **1017**
Surgeries performed



Mainstream Training Academy

- Mainstream Training Academy (the Academy) was established in 2018 as part of MESL's capacity development strategy. The Academy provides courses and programmes designed in collaboration with subject matter experts in the power sector and other related fields. These programmes help existing and new employees at MESL improve their knowledge, productivity and efficiency in their job roles. The Academy is also used to provide external training and as a support for the CSR programmes.

