



REPUBLIC OF SOUTH SUDAN

MINISTRY OF ENERGY AND DAMS (MED)

Presentation : Power Investment Opportunities and Projects

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VISION OF MED

A South Sudan that enjoys reliable and affordable electricity power supply that meets its socio-economic development needs.

MISSION OF MED

To exploit the indigenous and renewable energy sources to produce a reliable, safe, affordable and highest quality power supply to meet socio-economic development needs of South Sudan.





Introduction

- South Sudan has critical shortages in area of electricity infrastructure, Juba the Capital of South Sudan has installed capacity of 33MW diesel generators (IPP/ EZRA POWER PLANT). Renk Town in Upper Nile State is connected to 220kV power transmission line from Sudan. but load consumption is very low due to distribution networks constraint. However, there is an ongoing project promotion to extend the 220kV Transmission line to Malakal via Poloich Oil Fields.
- In existent, decentralized diesel Generator sets using fossil fuel are the most widely used source of electricity generation in the country, adding tons of carbon (Co₂) pollution . Given these circumstances, the country should focus on utilizing its significant stock of Renewable Energy of Water, Solar and Wind resources for future centralized or decentralized electricity solutions. Currently, there is an ongoing construction of 20MWp PV Solar + 35MWh BESS power plant at NASITU, and it will be commissioned by March 2022.

Introduction cont.

➤ **THE NATIONAL ELECTRICITY ACT, 2016** mandates MED to establish **National Electricity Regulatory Authority** with objectives to provide investment opportunities to build and operate critical electricity infrastructures on a BOT/PPP basis ; protect the interest of Consumers in respect of the prices charges for; provision of access to a secure and reliable electricity supply; promote safety and service quality; mitigate, where practicable, any adverse impact of electricity; encourage and promote energy efficiency and the use of renewable energy in South Sudan. The Authority, in realization of its objectives shall: set and review tariffs and charges; regulate the electricity market by granting Licenses; enforce its own decision, standards and Rules; prevent the abuse of monopoly or market power in relation to the electricity industry; regulate third party access to teslts han 1% of the population has access to electricity supply. Juba, the capital City of South Sudan has he electricity industry`s infrastructures.



Promotion of investment opportunities in power sector

- Potential sources of finance, power market and other inputs for successful power project development may involve bankable feasibility study for loans, search for local sponsors, private or public partners, foreign partners or various sources of finance.
- Project promotion starts once the opportunity study or pre-feasibility has demonstrated preliminary project viability.
- Identification of opportunity is being undertaken by the Ministry of Energy Dams to identify the power projects that exist at different stages of development at National or State level such as:
 - ❑ Power Generation projects
 - ❑ Power Transmission projects
 - ❑ Power Distribution project, Bulk power Supply, and etc.

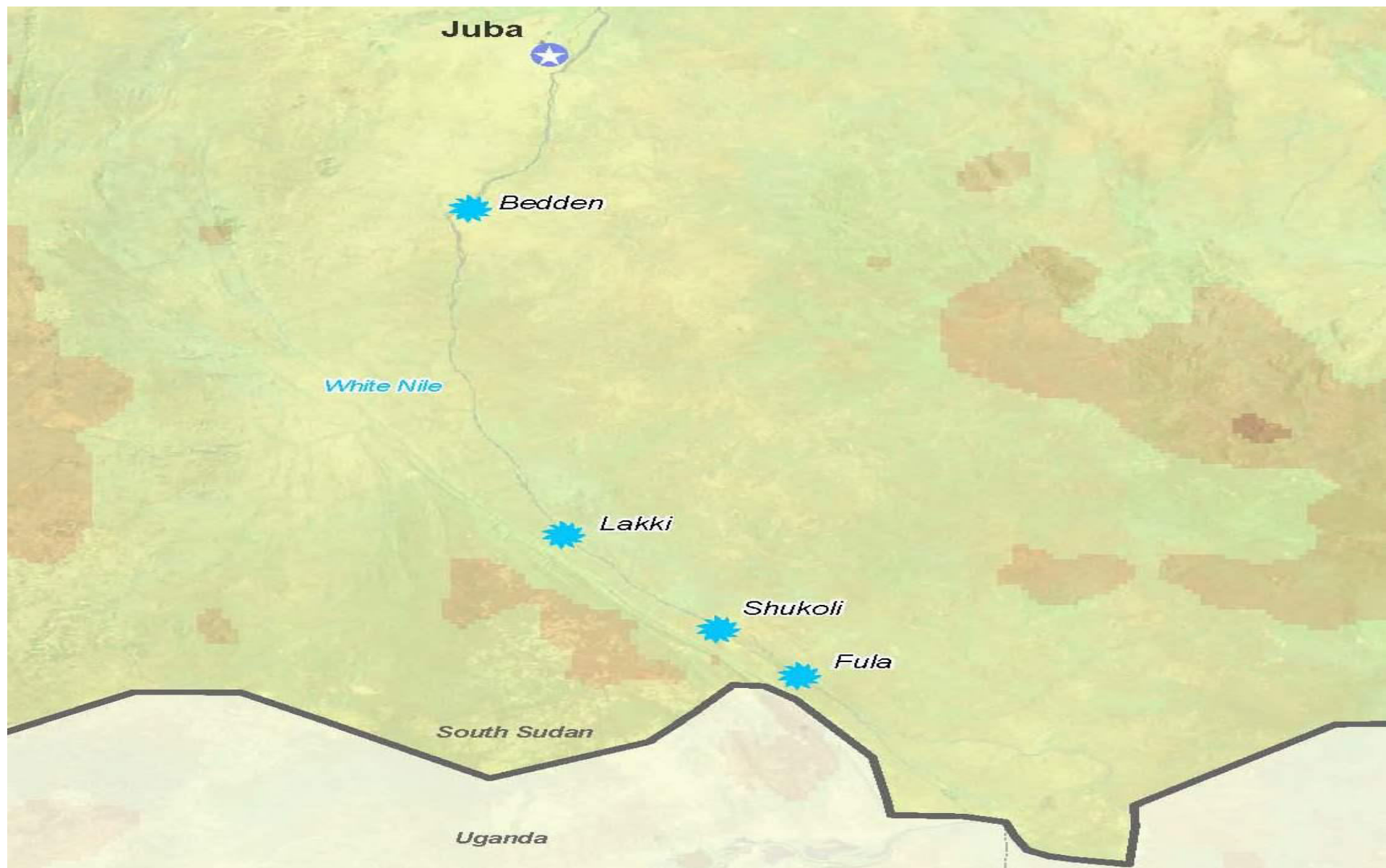


Power projects in the pipeline

1. NASITU 20MWpPV Solar +35MW BESS Plant, two storage training center building and 25km 33kV transmission line from Nasitu to Gumba RMU connection point (loan from AFREXIMBANK)
2. **Phase 2:** Over head lines 155.3km, 33kV Medium Voltage (MV) expansion, 0.4kV Low Voltage (LV) 889.2km distribution network expansion, and 132kV Juba Ring high voltage Transmission Line and three substations (AfDB)
3. 400kV High voltage transmission line from Uganda – Nimule – Juba under feasibility study process by NELSAP (AfDB)
4. Wau Generation and Distribution network ongoing construction by TRINITY ENERGY LTD on BOOT basis

Investment on hydropower projects.

SCHEME NAME	Grand FULA	SHUKOLI	LAKKI	BEDDEN
Dam Height	74m	45m	40m	65m
Capacity	740 to 1080 MW	240 to 280 MW	240 to 420MW	400 to 570MW
Head	62m	25m	20m	42m



GRAND FULA HYDROPOWER PROJECT

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LOCATION: White Nile River, 34 km down stream of Nimule landing and about 137km upstream from Juba Bridge

POWER HOUSE CAPACITY: Capacity (700 to 1080MW), Francis Turbine

PROJECT DESCRIPTION:

- ✓ Dam type: Concrete Gravity with Rock fill embankment arms
- ✓ Dam Height: 74m
- ✓ Crest Length: 600m (additional 800m of earth embankment)
- ✓ Reservoir Level: 622masl
- ✓ Powerhouse Head: 62m

Bedden Hydropower project

LOCATION: White Nile River, 138 km down stream of Nimule landing and about 30km upstream from Juba Bridge and is 66km downstream from proposed Lakki site

POWER HOUSE CAPACITY: Capacity (400 to 570 MW)

PROJECT DESCRIPTION:

- ✓ Dam type: Concrete Gravity with Rock fill embankment arms
- ✓ Dam Height: 65m
- ✓ Crest Length: 5,000m
- ✓ Reservoir Level: 510masl
- ✓ Powerhouse Head: 42m

SHUKOLI HRDOPOWER PROJECT

LOCATION: White Nile River, 47.9km down stream of Nimule landing and 125km upstream from Juba Bridge

POWER HOUSE CAPACITY: Capacity (210 to 280MW), Kaplan Turbine

PROJECT DESCRIPTION:

- ✓ Dam type: Concrete Gravity
- ✓ Dam Height: 45m
- ✓ Crest Length: 560m to 940m
- ✓ Reservoir Level: 560masl
- ✓ Powerhouse Head: 25m

LAKKI HYDROPOWER PROJECT

LOCATION: White Nile River, 34 km down stream of Nimule landing and about 100km upstream from Juba Bridge and is 24km downstream from proposed Shukoli site

POWER HOUSE CAPACITY: Capacity (240 to 420 MW), Kaplan Turbine

PROJECT DESCRIPTION:

- ✓ Dam type: Concrete Gravity
- ✓ Dam Height: 40m
- ✓ Crest Length: 940m to 1,200m
- ✓ Reservoir Level: 535masl
- ✓ Powerhouse Head: 20m

Investment on Regional Interconnection Power Projects

	DESCRIPTION OF INTERCONNECTION POWER LINE GRID	VOLTAGE	DISTANCE
		(kV)	(km)
1	Nimule(Uganda boarder) - Juba OHTL	400	192.4
2	Dedesa Tipi(Ethiopia) - Bor –Juba OHTL	400	700
3	Gambella(Ethiopia) - Malakal OHTL	230	357
4	Lokichogio(Kenya) -Kapoeta -Torit – Juba OHTL	220	645.6

FastTrack State`s Power Generation investment.

PROJECT NAME	TYPE OF PLANT	EXISTING INSTALLED CAPACITY (MW)	PROPOSED CAPACITY (MW)
Tharjath Power Plant	CCGT	0	300
Torit Power Plant	PV Solar+ BESS	0	10
Bor Power Plant	Diesel + PV Solar	2 diesel	20 PV Solar
Yambio Power Plant	Diesel + PV Solar	2 diesel	10 PV Solar

FastTrack State`s Power Generation investment cont.

PROJECT NAME	TYPE OF PLANT	EXISTING INSTALLED CAPACITY (MW)	PROPOSED CAPACITY (MW)
Kuacjok Power Plant	PV Solar +BESS	0	10
Aweil Power Plant	PV Solar +BESS	0	30
Rumbek Power Plant	Diesel + PV Solar	2 diesel Not operating	20
Malakal Power Plant	PV Solar	0	50

FastTrack State`s Power Generation investment cont.

PROJECT NAME	TYPE OF PLANT	EXISTING INSTALLED CAPACITY (MW)	PROPOSED CAPACITY (MW)
Wau Power Plant (TRINITY)	Diesel	3.8 Not operating	20
Pibor Power Plant	PV Solar + BESS	0	20
Abei Power Plant	PV Solar +BESS	0	20
Juba Power Plants	Hybrid	(33) Operating	20 PV Sol.+10MW

7. Interconnection Transmission Lines Grid's investment

NAME OF OVERHEAD TRANSMISSION LINE	VOLTAGE LEVEL (KV)	APPROX DISTANCE (KM)
Juba – Ramciel – Rumbek – Tharjath - Bentiu	220	933.4
Rumbek – Wau – Kuacjok - Aweil	220	464.4
Juba – Mundri – Maridi – Yambio- Tombura	220	690
Bor – Ayod – Malakal – Palouch - Renk	220	893.2

Thank You
Q & A