AFRICA ENERGY MARKET PLACE

The energy sector of Botswana:

Vision, Action Plan and Investment Opportunities



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Country Energy Sector Overview



Botswana Energy Sector Snapshot

Potential

2100
kWh/m2/day
Annual Solar Radiation

- Installed capacity: **1,3 MW**

1
MW
Hydro energy to be exploited

no perennial rivers and large dams and therefore has no potential for hydro-power, but, there is a potential for development of **1 MW**, located in the north of the country

2.2 M
cattle (3kg dung/LSU/day)
Biogas potential

The cattle population, estimated at **2.2 million head** indicates promising biogas potential, few domestic biogas digesters have been installed in the country

200
Billion tonnes
Coal to be exploited

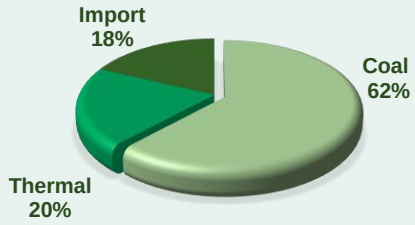
Morupule A and B run on coal

Production in MW

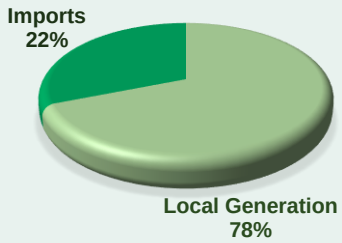
892 MW
Total installed capacity

22%
Imports

Total installed power per source



Production by entities



Key Indicators

15% **System losses**

613 MW **Peak demand in 2018**

70% **Access Rate**
Population electrified localities / Total Population

4% **Average growth in demand per year**

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Programs, Policy & Reforms and Players

Energy Sector Stakeholders

- Ministry for Mineral Resources, Green Technology and Energy Security – responsible for Energy Policy
- Botswana Power Corporation (BPC) - is a state-owned company responsible for electricity generation, transmission and distribution, and reports to the Ministry
- The Botswana Energy Regulatory Authority- (BERA)

Country generation programs/Expansion plans

The country has several electricity-generation projects in the pipeline, including the mostly unexplored potential of solar generation. In November 2018, BPC issued a Request for proposals relating to the development, financing, construction, operation and maintenance of 12 solar PV power projects. In a few years Botswana could be generating enough power internally to supply all of its domestic needs

Country's Priorities

Rural electrification along with safe and affordable access to energy is a key priority for Botswana to support economic growth. Diversification and decentralisation of the country's energy mix through renewables integration are important aspects in achieving these priorities. Investments in energy efficiency projects will also be a priority and will help reduce carbon emission

Energy Policies and Reforms

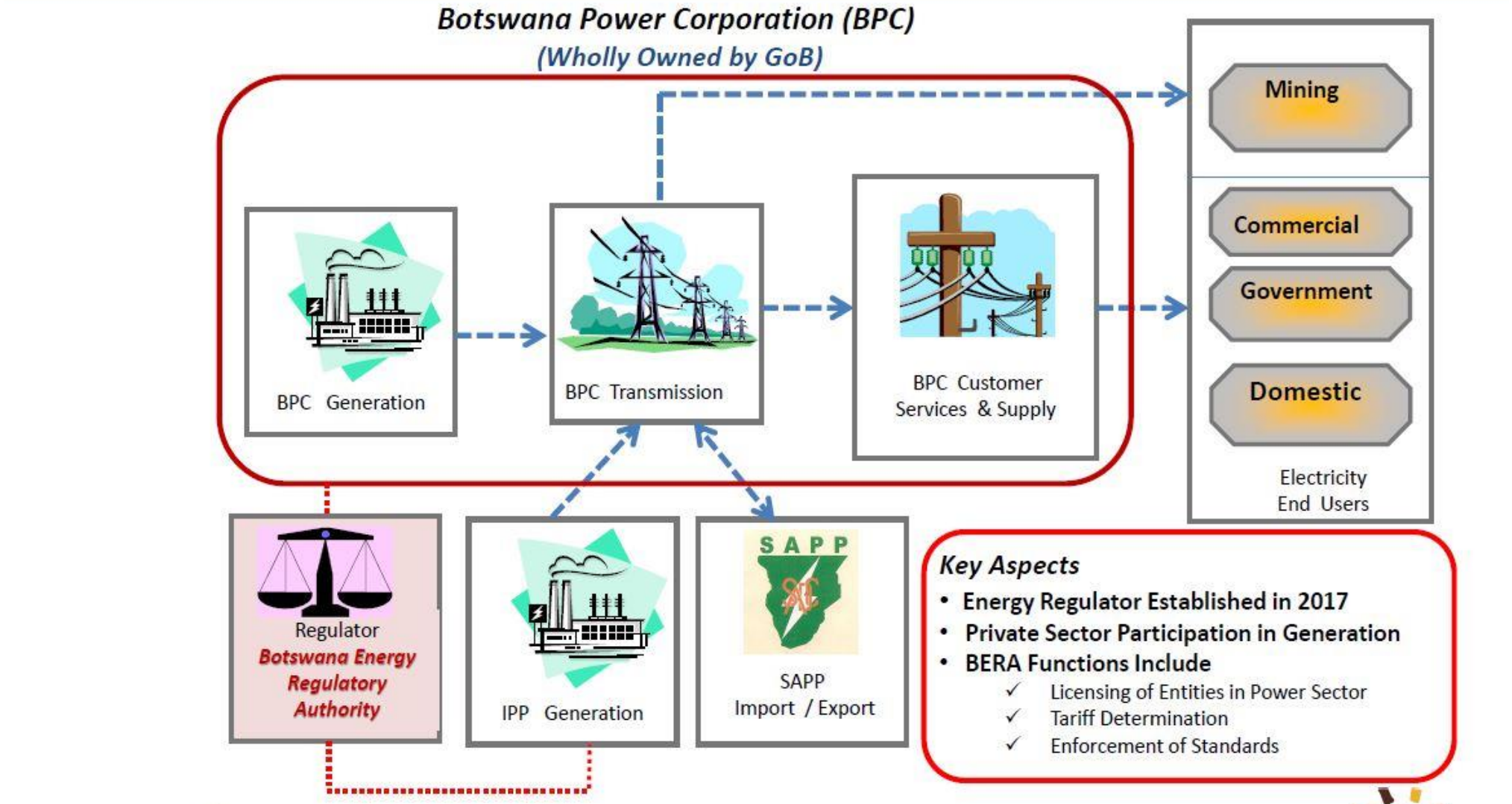
General electrification is the main objective of the Government. The feed-in tariffs (FITs) are yet to be developed by the government.

The National Development Plan (NDP) 11 places an emphasis on self-sufficiency. The intention of the NDP is to establish a cost-reflective tariff.

The National Energy Policy (2015) takes this ambition further by aiming to become a net exporter of energy.

Energy Supply and Demand

THE BOTSWANA ELECTRICITY SUPPLY INDUSTRY (ESI) OVERVIEW



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BOTSWANA SOURCES OF ELECTRICITY

Morupule A (Coal)



Morupule B (Coal)



Orapa (Diesel) 90 MW



Matshelagabedi (Diesel)



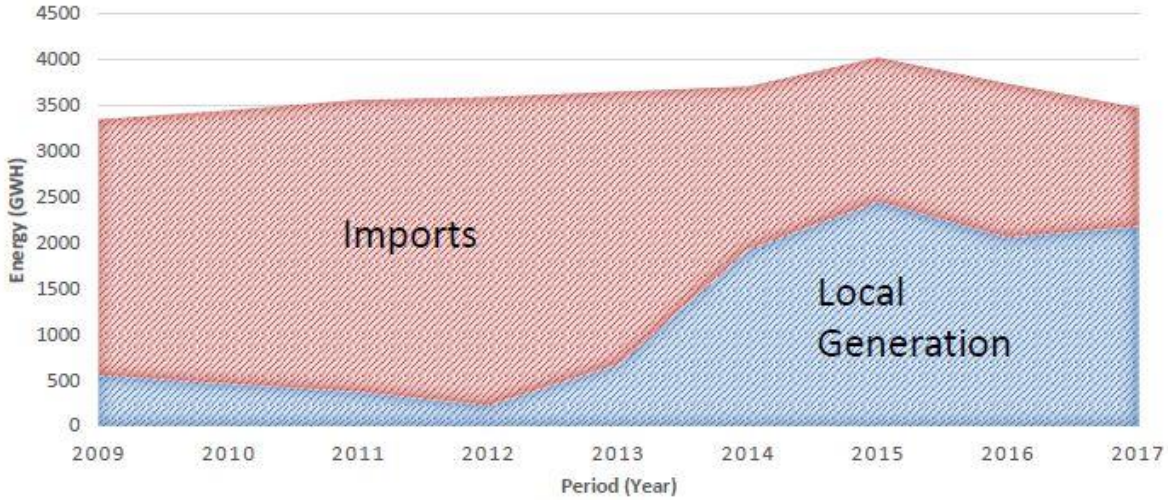
Morupule A (4X33MW)
Commissioned 1986/9

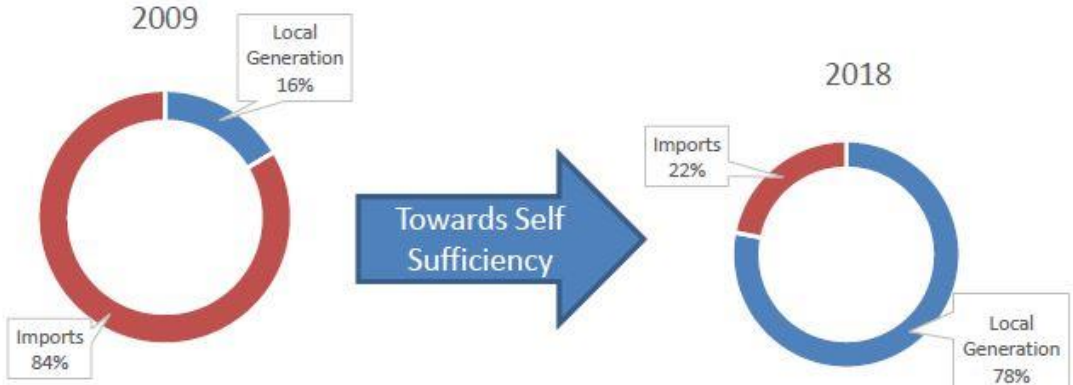
Morupule B (4 X150MW)
Commissioned 2012/13

Orapa (2X45MW)
Commissioned 2011

Matshelagabedi
Commissioned
70MW – 2010

SOURCES OF SUPPLY: MARKET SHARE

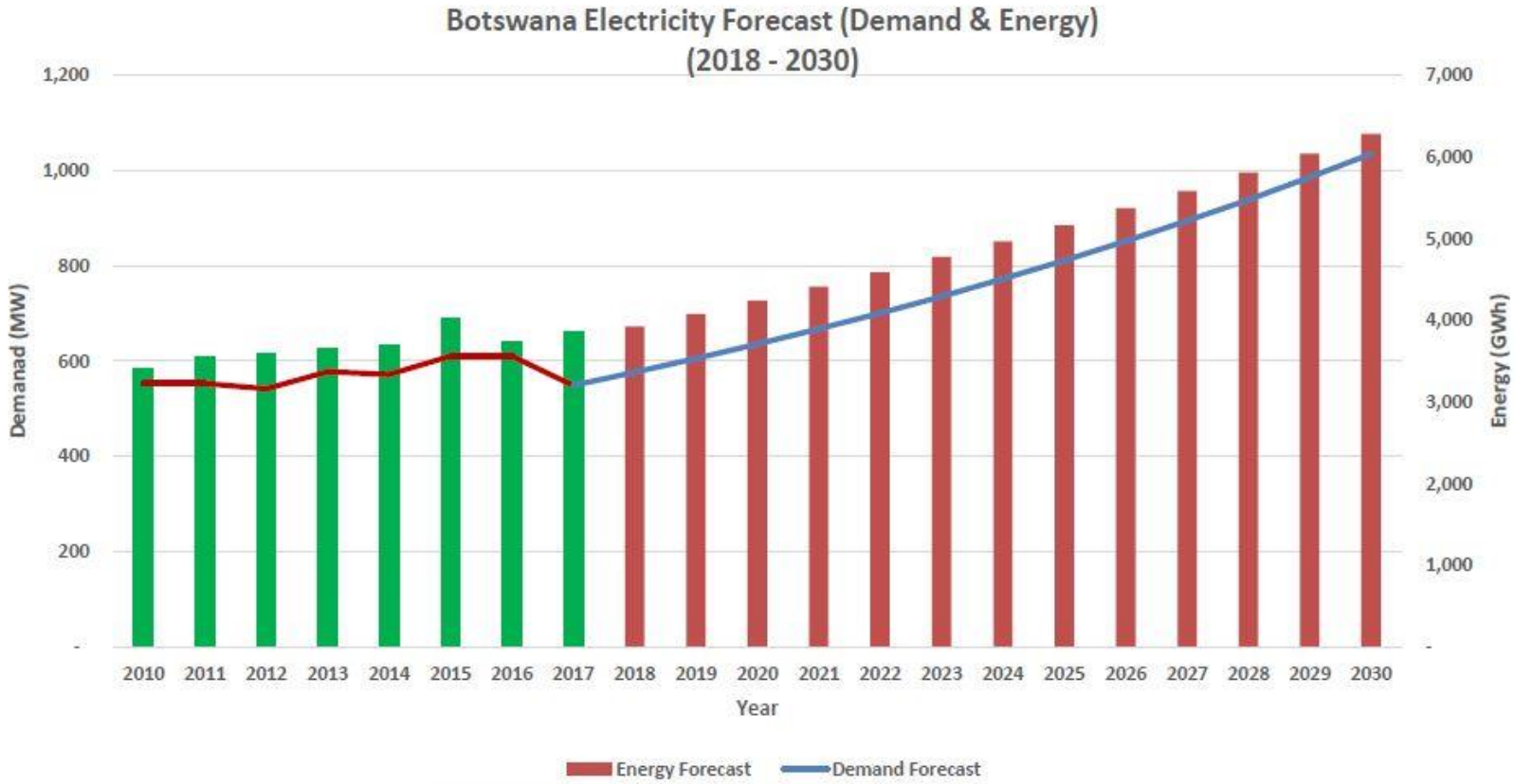




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ELECTRICITY DEMAND FORECAST (2018 – 2030)

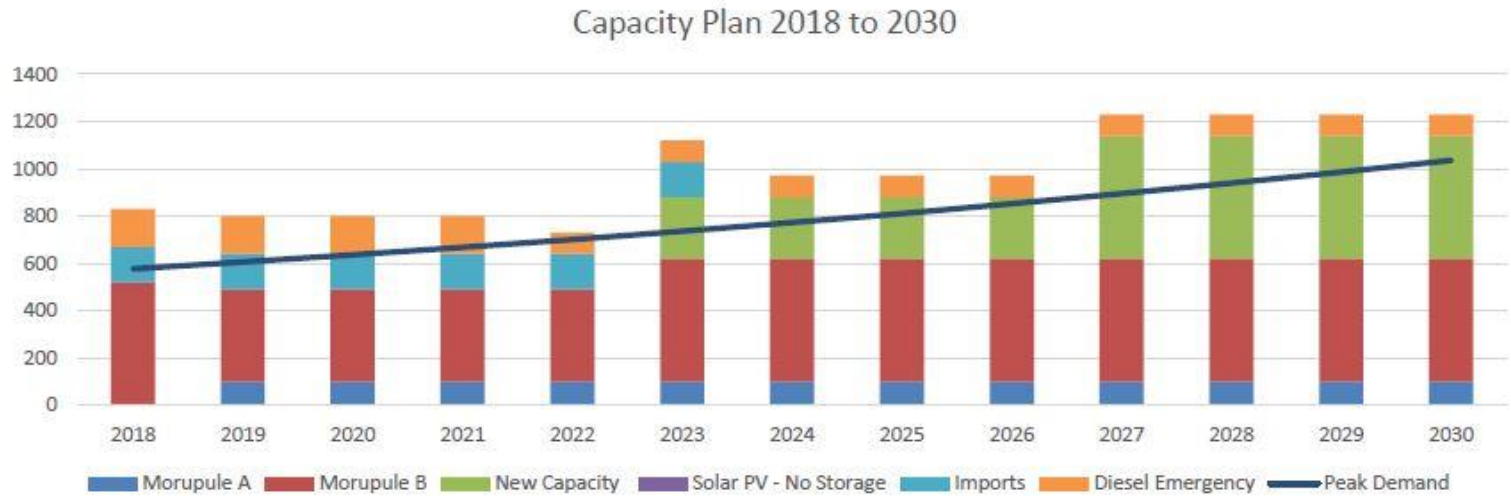


GROWTH RATES

- Capacity (MW) = (3-5)%
- Energy (MWH) = (1.5 – 3) %

Expansion Plan and New Energy Mix

GENERATION EXPANSION PLAN (2018 – 2030)

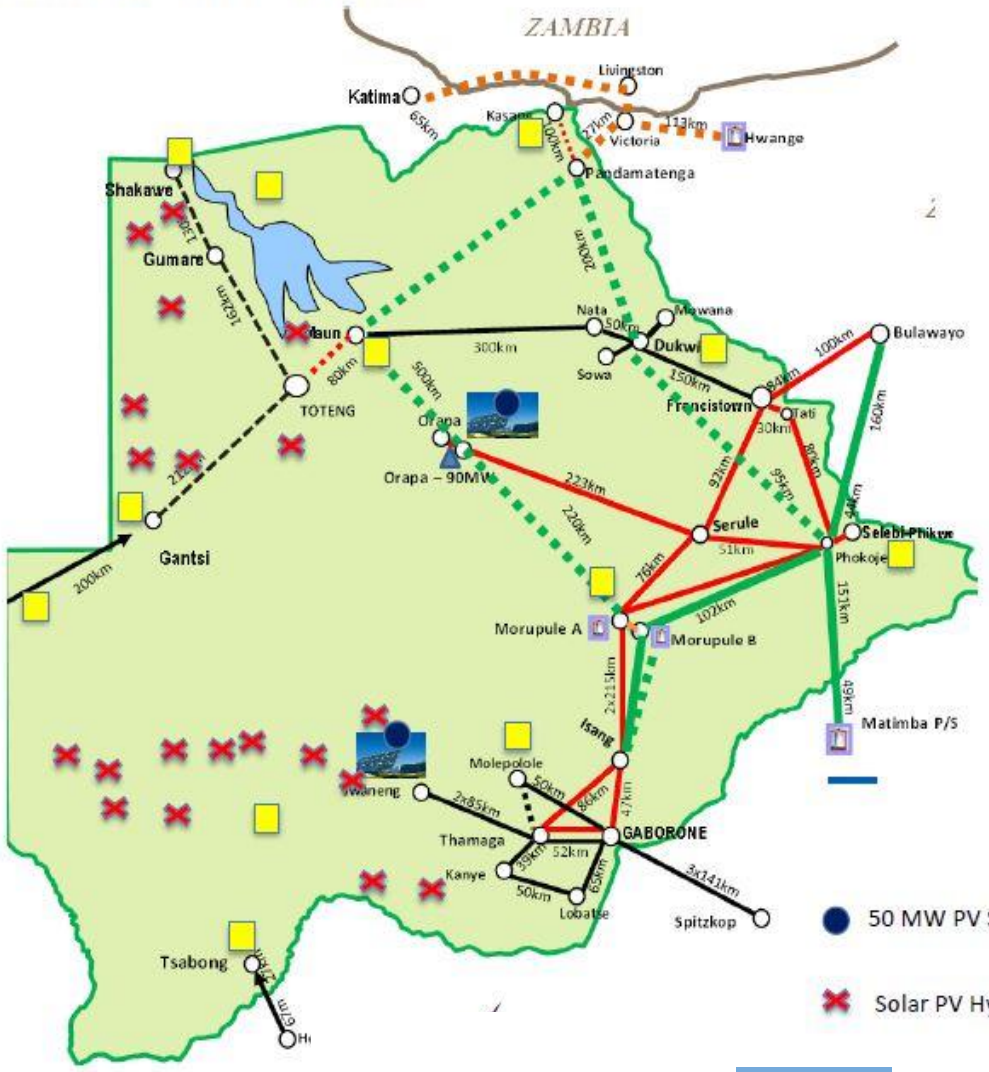


Generation Plan (2018 – 2030)		
No.	**Source**	**Remarks**
1	Morupule A (Existing)	132 MW, Period 2018 – 2033
2	Morupule B (Existing)	600 MW, Period 2012 – 2042
3	New Capacity (Future)	300 MW, Period Post 2023
4	Solar PV (Future)	100 MW , Period 2021 Onwards

Grid Investments

RENEWABLE ENERGY ROAD MAP: TORWARDS A NEW ENERGY MIX

Renewable Energy Road Map



1. 100MW Solar PV (2X50MW)
   - ❑ Procurement of Developer In progress (Open Tender).
   - ❑ Commercial Operation 2021

2. 12 X Grid Connected PV
   - ❑ At Tender Stage - Developer Selection
   - ❑ Commercial Operation 2020/21

3. 20 Solar PV Off Grid for Villages
   - ❑ At Inception Stage

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BOTSWANA'S TRANSMISSION GRID INVESTMENTS





1. **North West Transmission Grid (Phase 1)**
   - ❑ Construction In Progress
   - ❑ Completion Dec 2019
2. **North West Transmission Grid (Phase 2)**
   - ❑ Project Specification and bid documents in place
   - ❑ Funding to be Secured
3. **ZIZABONA INTERCONNECTION**
   - ❑ Sponsors (Power Utilities) to Secure Funding

Thank you for your attention.

