



ELECTRICITY SECTOR:

ETHIOPIAN ELECTRIC POWER

18th June, 2019

□ Background

□ Potential

- ✓ Hydropower-----45000MW
- ✓ Solar-----1500-2000kWh/m²
- ✓ Wind-----13000GW (depending on availability of transmission line and access roads)
- ✓ Geothermal----- 10000MW

□ Background (Contd...)

□ Organization

- ✓ Ethiopian Electric Power (EEP)
- ✓ Ethiopian Electric Utility (EEU)

□ Responsibilities

➤ Ethiopian Electric Power

- Construction and operation of Generation and Transmission systems,
- Bulk sales to
 - EEU at substation points
 - HV industries
 - Neighboring countries

➤ Ethiopian Electric Utility

- Construction and operation of Distribution systems,
- Retail sales to individual customers

□ EEP's Facilities

■ Generation Systems

✓ Existing: 19 Plants<>

- 14 Hydro=3817MW//14550GWh ~91.5%///93.5%
- 3 Wind=324MW//821GWh ~7.8%///5.3%
- 1 Geothermal=7.3MW//20GWh ~0.20%///0.13%
- 1 WtE=25MW//186GWh ~0.60%///1.2%

Total=4173.3MW///15564GWh

✓ UC: 4 Plants<>

- 3 Hydro=7556MW///23242GWh
- 1 Wind=120MW///382GWh

✓ Planned (2030): 22 Plants<>

- 6 Hydro=2219MW///
- 3 Wind=560MW///
- 9 Solar PV=1100MW///19274GWh
- 4 Geothermal=1620MW///6480GWh

□ EEP's Facilities (Contd...)

■ Transmission Systems

✓ Existing: Transmission Line

Voltage (kV)	Length (km)
500	1666
400	2874
230	8896
132	5897
Total	19333

✓ UC: Transmission Line

Voltage (kV)	Length (km)
500	434
400	731
230	697
132	109
Total	1971

□ EEP's Facilities (Contd...)

■ Bulk Supply

✓ EEU

- Delivery point: At each substations
- Bulk sale agreement: Through PPA to be signed soon

✓ HV Industries

- Dedicated supply: About 16 HV industries connected through HV transmission lines (230 or 132kV). (Cement industries, and the like.)

✓ Neighboring Countries

□ Existing Supply

- Sudan (North)
 - Voltage level: 230kV (D/C)-Northern route
 - Capacity: 250MW
- Djibouti
 - Voltage level: 230kV (D/C)-Southern route
 - Capacity: 150MW

□ EEP's Facilities (Contd...)

□ Under Construction

- Kenya
 - Voltage level: $\pm 500\text{kV}$ HVDC
 - Capacity: 2000MW

□ Planned

- Sudan (North)
 - Voltage level: 500kV (D/C)-Southern route
 - Capacity: 2000MW
- Djibouti
 - Voltage level: 230kV (D/C)-Northern route
 - Capacity: 150MW
- Eritrea, Somali Land and Main Somalia, GCC Countries: Under discussion
- Tanzania, Uganda, Burundi: Through wheeling in Kenya's system

□ Generation FDI

□ Open market on Generation

- ❖ GOV of Ethiopia endorsed a PPP law to open the market for private investors to involve in generation facilities through IPP modality to relieve public financing in the sector.
- ❖ Planned generations are considered to be developed through IPP in a way to increase the generation mix from other renewables other than hydropower.
- ❖ Approved IPP Projects

✓ Hydropower

No.	Name of Plant	Capacity (MW)	Energy (GWh)
1	Chemoga-Yeda	280	1089
2	Halele-Werabesa	422	2029
3	Genale Dawa-5	100	750
4	Genale Dawa-6	256	1542
5	Dabus	798	3433
6	Geba	372	1749

☐ Generation FDI

☐ Solar PV

No.	Name of Plant	Capacity (MW)	Energy (GWh)	Status
1	Metahara	100	170	Financial Closure
2	Gad	125	213	RFP Tender Issued
3	Dicheto	125	213	RFP Tender Issued
4	Mekele	100	255	RFQ Tender Issued
5	Humera	100	255	RFQ Tender Issued
6	Weranso	150	255	RFQ Tender Issued
7	Wolenchiti	150	255	RFQ Tender Issued
8	Metema	125	213	RFQ Tender Issued
9	Hurso	125	213	RFQ Tender Issued

☐ Generation FDI

✓ Geothermal

No.	Name of Plant	Capacity(MW)	Energy(GWh)	Status
1	Korbeti	520	2080	Financial Closure
2	Tulu Moye	520	2000	Financial Closure
3	Shashemene	100	745	PPA Negotiation
4	Dofan	100	745	PPA Negotiation
5	Boku	100	745	PPA Negotiation
6	Dugna Fango	150	1117	PPA Negotiation
7	Fentale	150	1117	PPA Negotiation

✓ Wind

No.	Name of Plant	Capacity (MW)	Energy (GWh)	Status
1	Ayisha-1	310		Study stage

Thank You