



Knowledge Co-Creation Program Energy Policy

Country report: Uganda

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Ministry of Energy and Mineral Development

Presentation Outline



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- Energy reserves
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- Outlook of energy demand and supply (2021)
- Energy- related investment for domestic and overseas
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Country profile



Country profile c'tnd



- Country size: 241,038 sq km.
- Land: 197,100 sq km
- Water: 43,938 sq km
- Capital city: Kampala
- National currency: Uganda Shilling
- National language: English
- Electricity Access: National – 20%
Urban – 55%
Rural – 9%

Economic indicators



- GDP - 26.37 billion USD (2015)
- Population – 38.3 Millions
- No. of Households – 7.8Million

Energy reserves



- Crude oil proven reserves - 6.5 billion barrels
- 2.5 billion of which is recoverable
- Natural gas - 14.16 billion cum
- Hydro potential along River Nile over 2GW
- Renewable energy such as small hydros, biomass, solar, wind and geothermal sources.

Current Energy Policy and Measures



Power sub-sector

- Electricity Act 1999 (under review)
- Energy policy 2002 (under review)
- Renewable Energy Policy 2007
- National Development Plan
- Grid code (under review)
- Vision 2040
- Sustainable Energy for all 2030_UNDP_EU
- Atomic Energy Act 2008

Petroleum sub-sector

- National Oil and Gas policy 2008

Measures



Power sub-sector

- Establishment of an Energy Investment Fund to provide financing for generation projects.
- Restructuring of the sector Ministry to address current challenges.
- Amendment of the Electricity Act 1999 to address sector challenges like power theft and vandalism.
- Review of the Energy policy ongoing

Petroleum sub-sector

- Establishment of petroleum fund
- Establishment of Petroleum Authority of Uganda, National Oil Company of Uganda, Refinery Holding Company

Past Energy demand and supply



- Current On Grid Domestic Peak Time Demand– 541.39MW (April'17) (544.93MW in Feb'17)
- Current On Grid System Peak Time Demand– 564.14MW (April'17) (596.07MW in Feb'17)
- Installed Generation Capacity ~ 886.3 MW
- Firm Generation Capacity- 650 MW
- Annual average load growth – 5% (energy), 4.64% (power)
- Load factor – 72%
- Annual Purchases (Sales) – 3,535.39 GWh , (3,399.98GWh) (2016)
- Network Losses: Transmission - 3.83% (2016), Distribution- 16%

Energy demand by sector (kwh)

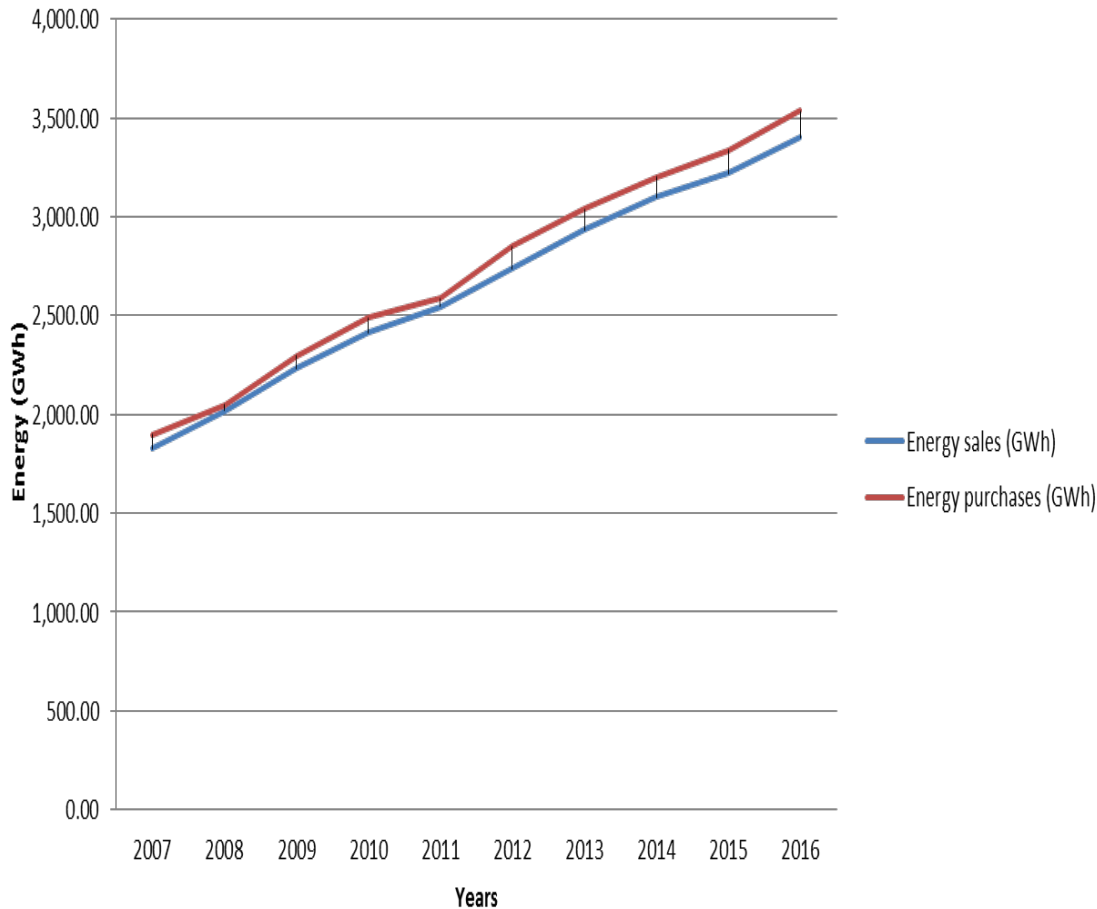


Year	Domestic	Commercial	Medium Industries	Large Industries	Street Lights
2016	146,958,673.178	80,819,968.424	106,338,013.296	305,015,892.890	409,402.500
2015	142,554,002.860	77,451,643.129	101,529,738.978	292,422,671.120	389,674.250
2014	135,216,314.584	70,929,578.026	97,504,895.292	265,015,536.953	469,634.750
2013	119,031,487.099	63,851,768.295	94,584,445.176	245,036,095.819	452,305.250
2012	117,363,100.250	54,009,150.200	85,426,609.000	227,185,130.000	337,387.632
2011	99,353,750.000	53,395,500.000	65,053,500.000	214,836,000.000	355,250.000
2010	104,464,797.500	59,968,714.750	64,043,053.250	177,816,585.750	590,789.250
2009	90,913,080.000	52,136,500.000	58,099,250.000	148,535,035.000	545,845.000
2008	81,860,015.000	44,183,633.000	55,726,689.250	137,368,196.250	480,718.250

Demand and supply (Purchases and sales)



Energy Purchases and Sales



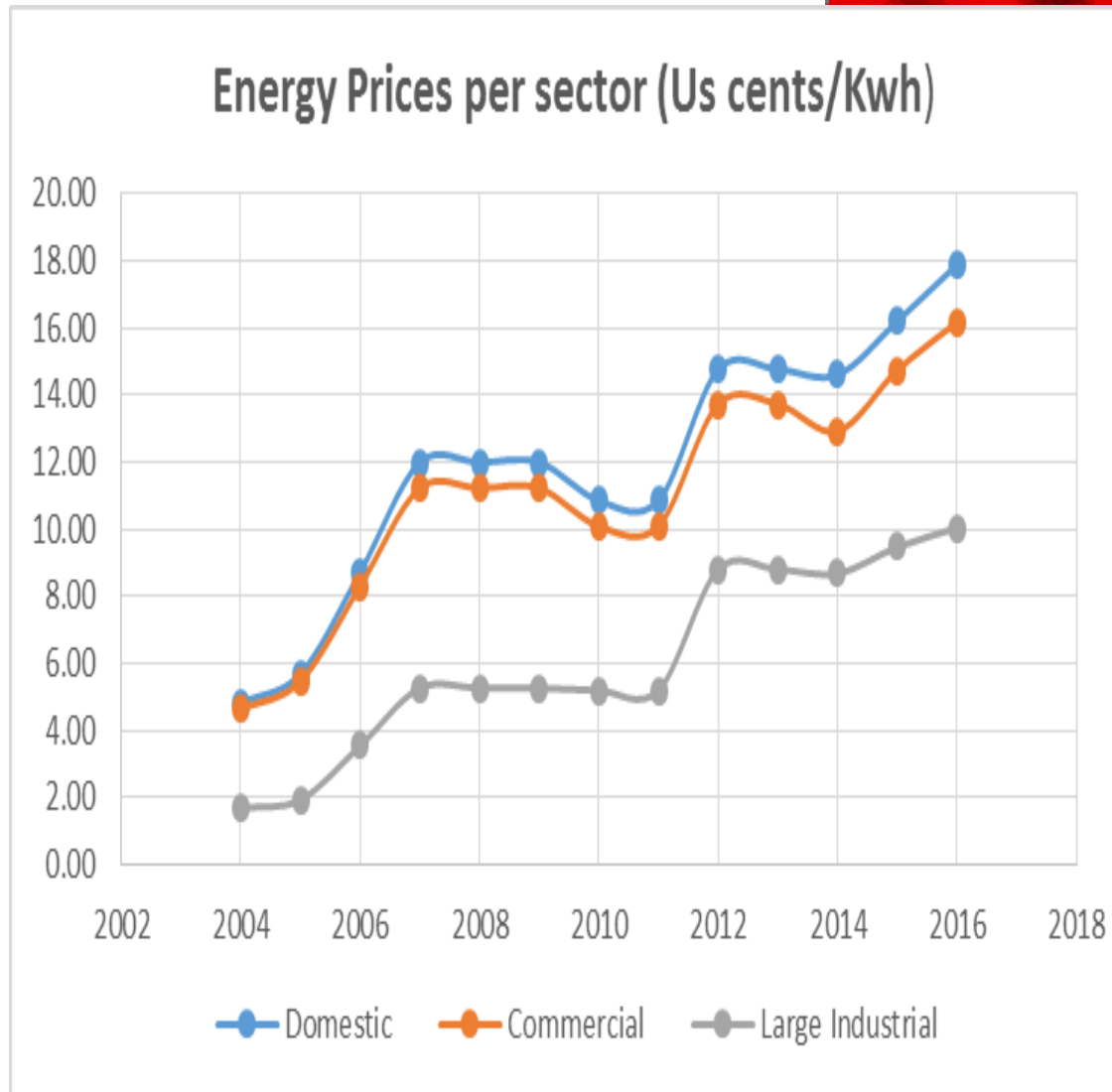
Year	Energy sales (GWh)	Energy purchases (GWh)
2007	1,824.67	1,896.70
2008	2,016.93	2,050.40
2009	2,233.51	2,297.70
2010	2,412.66	2,488.30
2011	2,544.15	2,589.00
2012	2,737.78	2,849.80
2013	2,932.85	3,038.40
2014	3,098.92	3,203.10
2015	3,218.48	3,335.16
2016	3,399.98	3,535.39

Energy Prices (Us Cents/kwh)

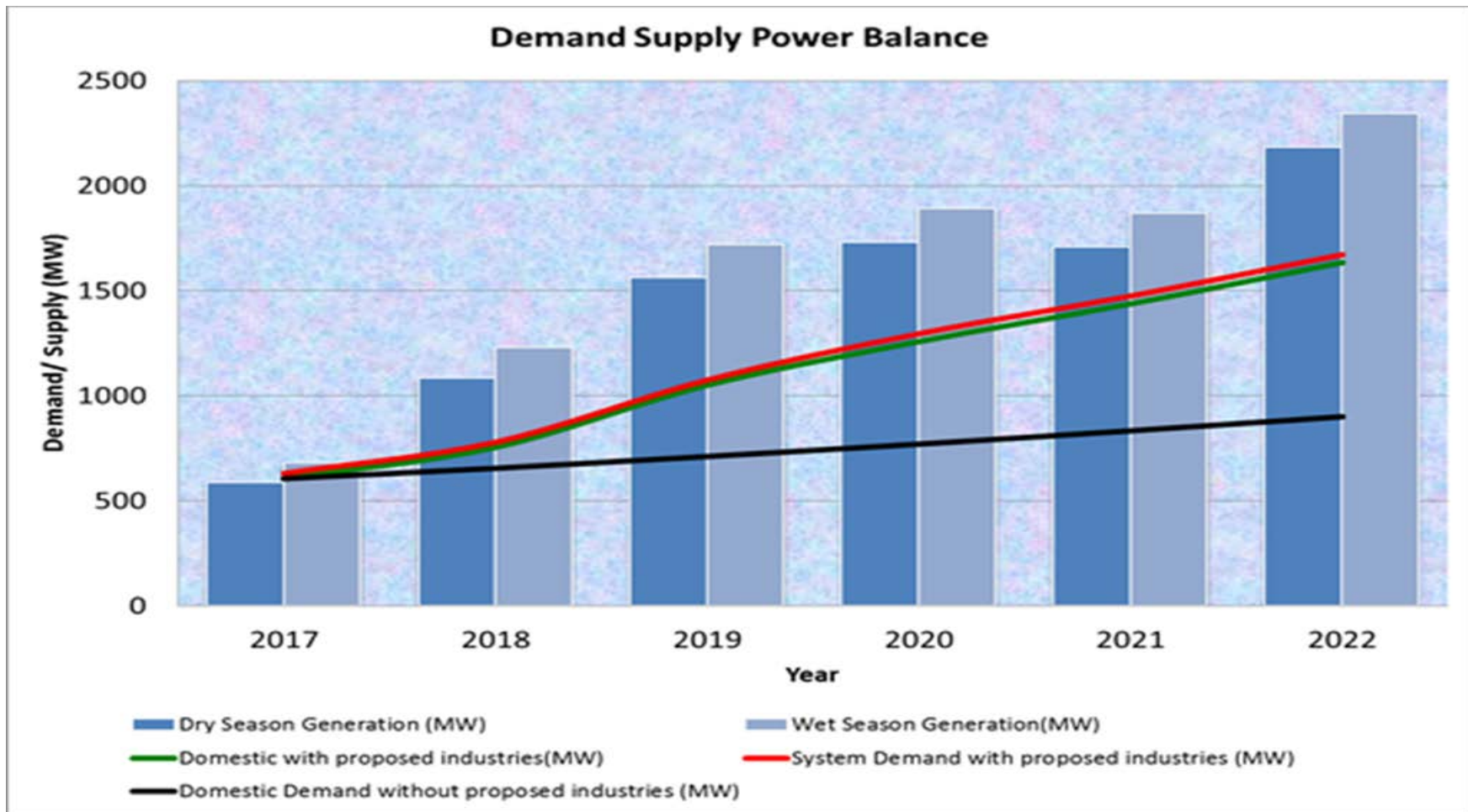


Year	Domestic	Commercial	Large Industrial
2016	17.89	16.18	10.05
2015	16.21	14.75	9.48
2014	14.61	12.93	8.69
2013	14.77	13.74	8.81
2012	14.77	13.74	8.81
2011	10.86	10.10	5.21
2010	10.86	10.10	5.21
2009	12.00	11.23	5.27
2008	12.00	11.23	5.27
2007	12.00	11.23	5.27
2006	8.73	8.32	3.56
2005	5.70	5.48	1.94
2004	4.83	4.64	1.70

1 USD = 3550UShs



Outlook of energy demand and supply (2021)



Demand Forecast



- Demand forecast –business as usual

Year	2017	2018	2019	2020	2021
Domestic Demand (MW)	603	651	704	761	822

- Demand forecast –Medium (Industrial Loads as per UMEME's Large Customer's list as at November, 2016)

Year	2017	2018	2019	2020	2021
Domestic Demand (MW)	795	877	1065	1193	1364

Energy- related investment for domestic and overseas



Power sub-sector

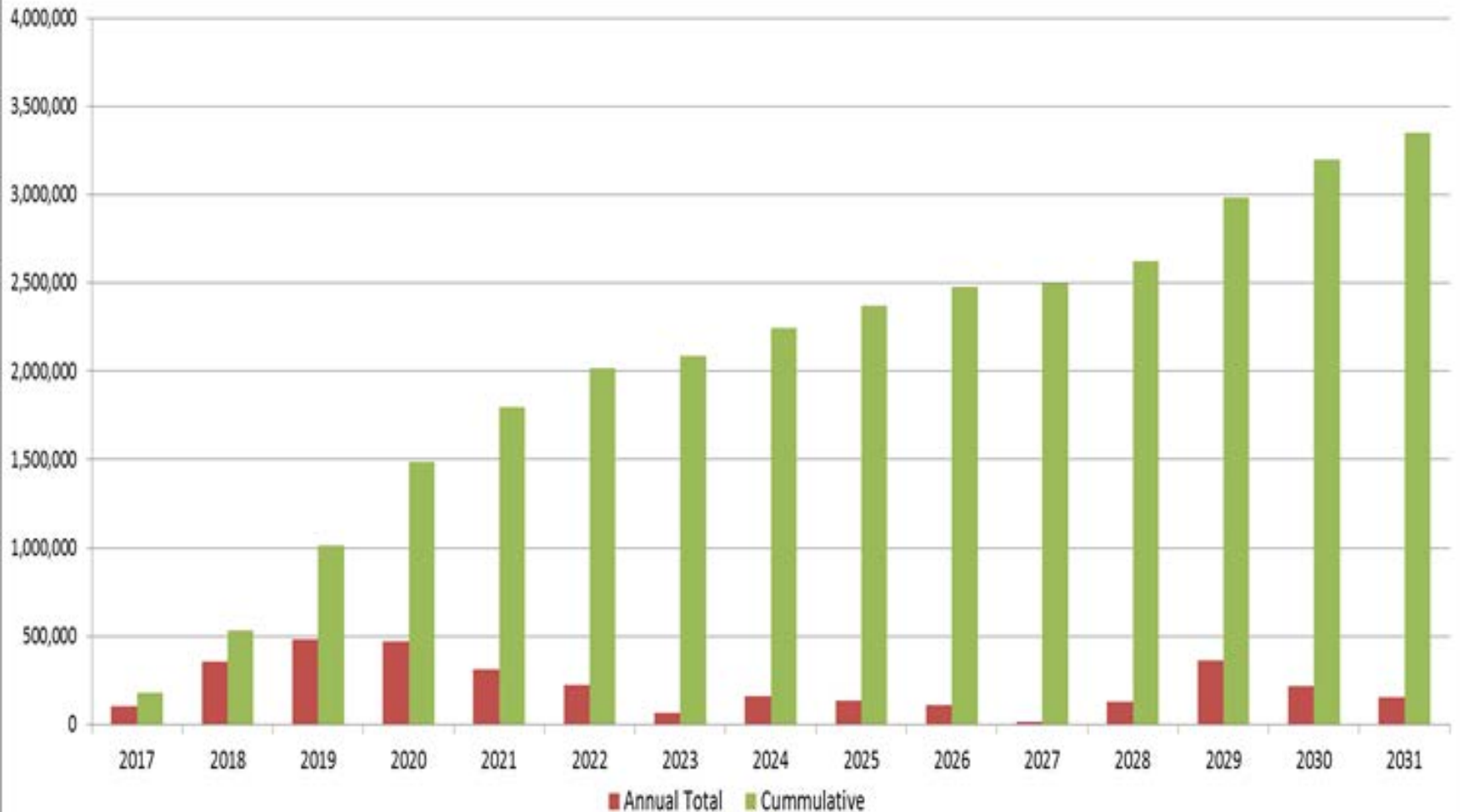
Grid development plan

- Power Evacuation projects
- System re-investment projects
- System expansion project
- Regional Interconnection Projects

Grid Investment Requirements



INVESTMENT TREND 2016-2031 (X1000USD)



Grid investment requirements 2017 - 2031



Years	2017	2018	2019	2020	2021	2022	2023
Annual Cost (USD)	104,882	356,093	483,134	471,126	310,277	224,093	65,188
Cumulative Cost (USD)	175,630	531,723	1,014,857	1,485,984	1,796,261	2,020,354	2,085,542

Years	2024	2025	2026	2027	2028	2029	2030	2031
Annual Cost (USD)	158,507	131,348	107,566	16,576	126,091	359,590	213,127	155,271
Cumulative Cost (USD)	2,244,049	2,375,398	2,482,964	2,499,540	2,625,631	2,985,220	3,198,348	3,353,619

Other investment areas



Petroleum sub-sector

- Refinery
- Uganda-Tanzania Crude Pipeline

Major difficulties and bottlenecks currently faced in formulating energy policies



- Existing land laws don't favour some of Government policies
- Private sector, own interests
- Government revenue agencies
- Inadequate financing- policies tagged to financial implication
- Lack of data
- Lack of adequate capacity
- Political inference – policies have to be politically aligned
- Influence from Development partners.
- Petroleum is a new sector with a lot of expectations with different interests



Subjects of interest

- Electricity Generation from Waste
- Geothermal generation



Thanks