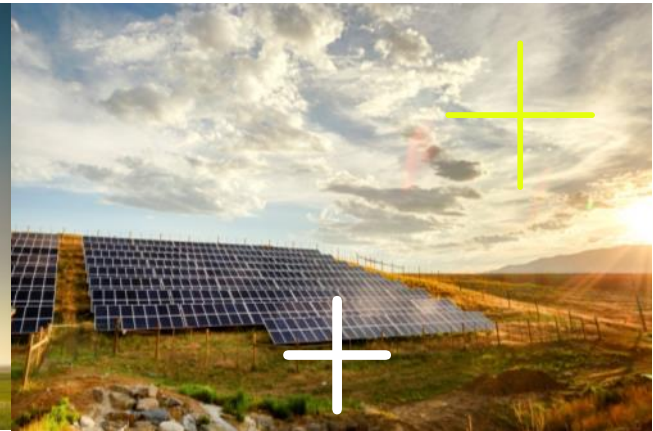


+ Power Infrastructure in Africa Setting the Stage – Panel 1



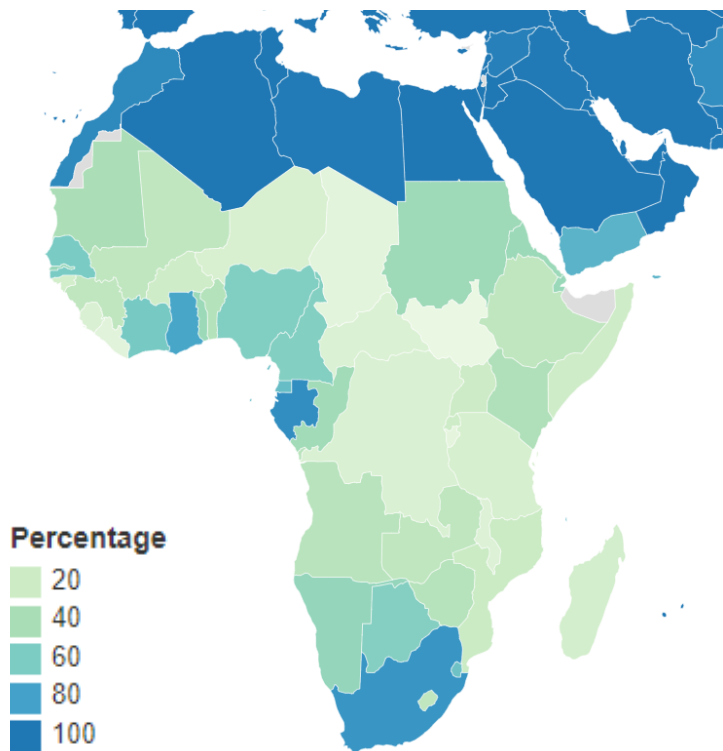
October 24, 2018

Robert Griesbach

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% of Population with Access to Electricity



Top 10 Populous Countries	Access (%)	Population (M)
Egypt, Arab Rep.	100	91.5
Algeria	99	39.7
South Africa	84	55.0
Nigeria	59	182.2
Kenya	56	46.1
Ethiopia	43	99.4
Sudan	39	40.2
Tanzania	33	53.5
Uganda	27	39.0
Congo, Dem. Rep.	17	77.3

Countries of Interest	Access (%)	Population (M)
Zambia	27	16.2
Malawi	11	17.2

*Map & Data Retrieved from *The World Bank Group* on October 13, 2018

Electric Power Consumption per Capita

Average Sub-Saharan	497
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Countries	kWh per Capita per year
South Sudan	39
Niger	52
Eritrea	63
Ethiopia	70
Benin	97
Tanzania	100
Congo, Dem. Rep.	107
Nigeria	144
Togo	155
Sudan	159
Kenya	171
Congo, Rep.	213
Senegal	222
Cameroon	274
Côte d'Ivoire	281

Angola	347
Ghana	357
Mozambique	463
Zimbabwe	543
Zambia	703
Morocco	912
Gabon	1304
Algeria	1362
Tunisia	1446
Namibia	1564
Egypt, Arab Rep.	1699
Botswana	1708
Libya	1841
Mauritius	2183
South Africa	4229

*Data Retrieved from *The Little Green Data Book 2017* by *The World Bank Group*

Need for Increased Power Supply is Widespread

Full Range of Options Should be Considered

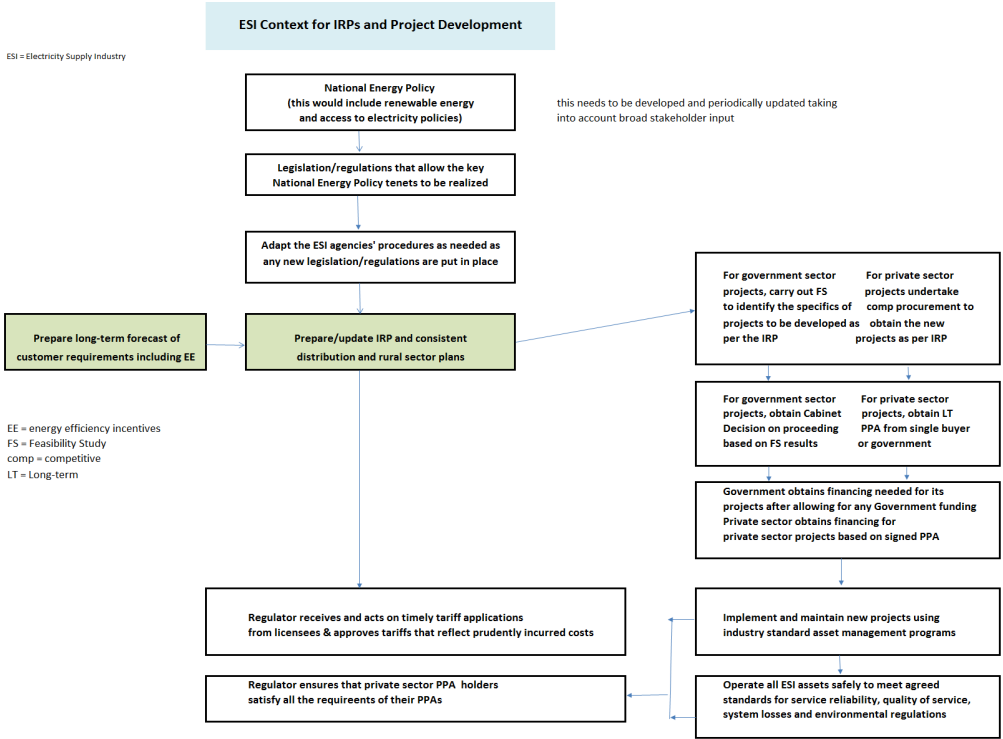
Generation	Transmission	Distribution	Consumer Connections
Centralized large scale	X	X	X
HV Interconnections with neighbors	X	X	X
Small scale on-grid renewables	X	X	X
Off-grid renewables + storage		light	X
Behind the Consumer's Meter			X

Diversity is Key

Utilizing all available power supply options

- = Diversity of energy resources utilized
- = Diversity of developers attracted
- = Diversity of financing sources accessed
- = Diversity of supply risks mitigated
- = Diversity of consumer benefits gained
- = Diversity of power system benefits captured

Typical Fully Developed Power Sector Framework



Framework Provides Enabling Conditions / Constraints that Impact Different Supply Sources in Different Ways

National energy policies

- Legislation/regulations
 - ESI agency procedures (ministries, utilities, ISOs/PPs)
 - Planning (IRP, RE, local)
 - Project development activities
 - Financing (government/donor/private)
 - Project implementation (as planned, on time)
 - Tariffs/prices (regulator/supplier)
 - Effective operations (safe, reliable, efficient)

+

Thank you.

For more information,
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