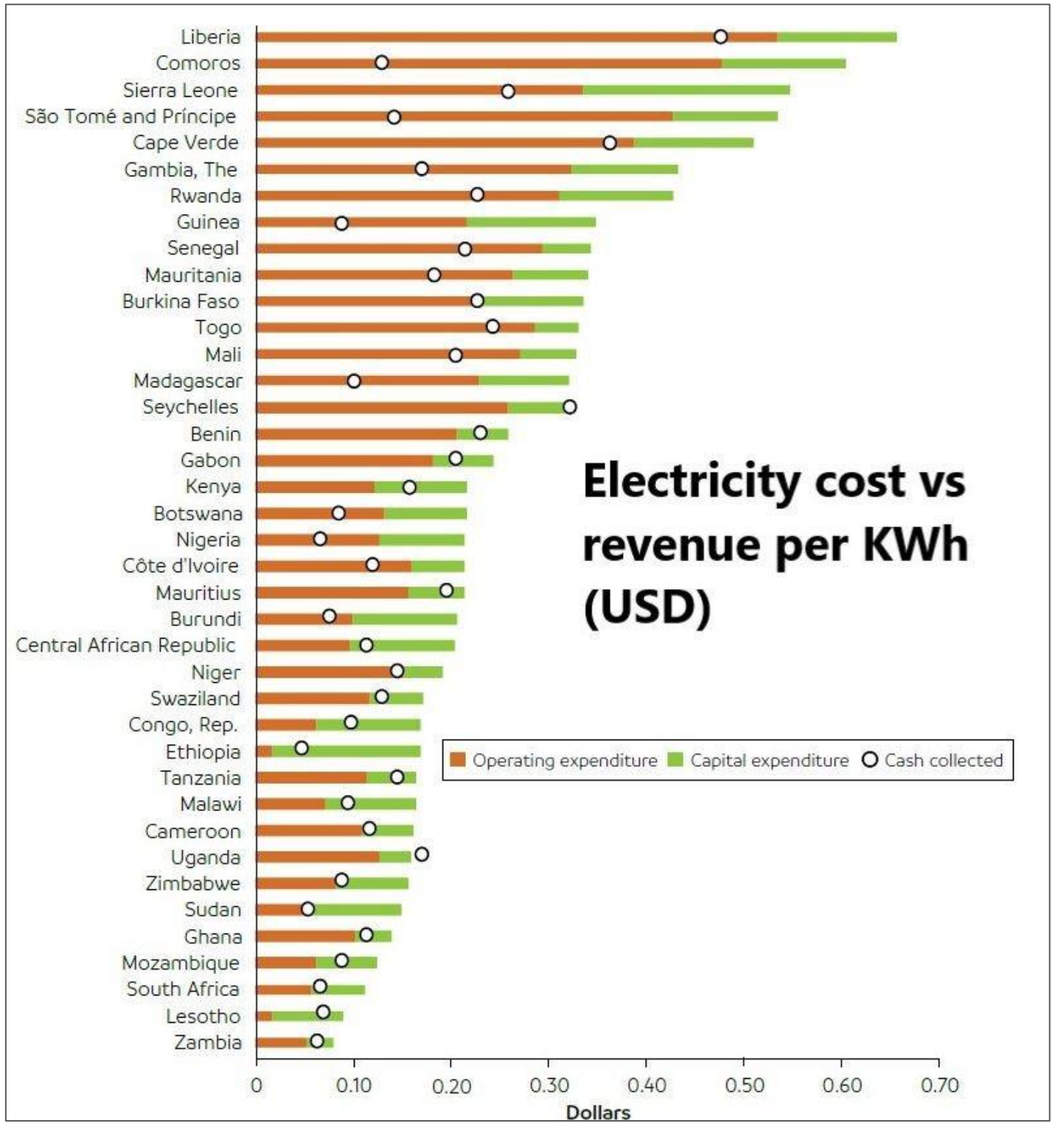
Africa - Power Grids in (sub-Saharan) Africa

Insufficient Power Grid

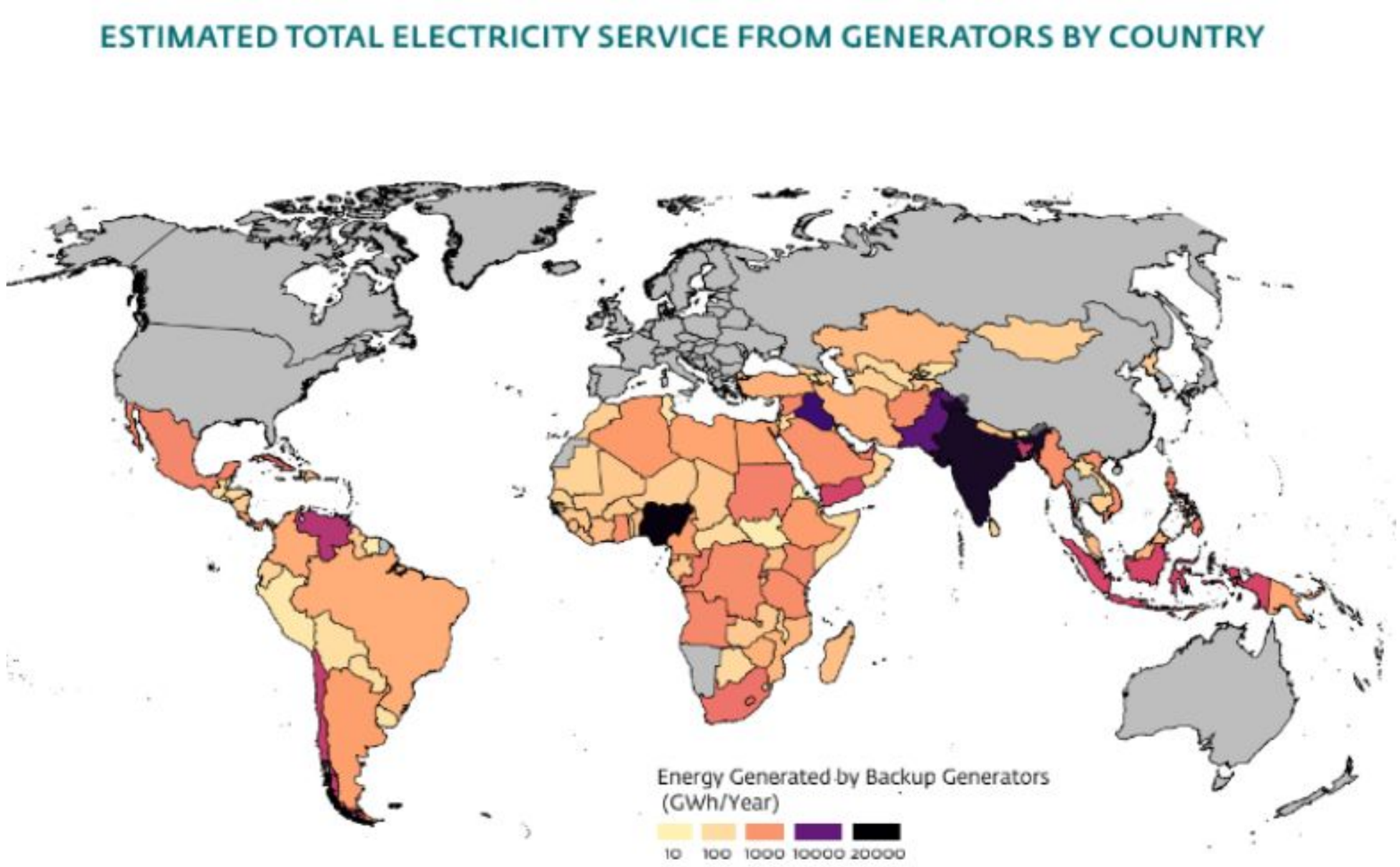
- Quality of power grids in sub-Saharan Africa is insufficient for electrification of economies
- Basically, sub-Saharan Africa is “off-grid” due to
  - lack of funding
  - inefficient management, policies, subsidies
  - energy theft
- Preventing power theft is challenging

	Population (million)	Power Gen. Capacity (GW)	Power Gen. Capacity per 1 million people
Germany	83	211	2.542
UK	68	75	1.103
France	67	136	2.030
Total	218	422	1.936

	Population (million)	Power Gen. Capacity (GW)	Power Gen. Capacity per 1 million people
Nigeria	213	5.5	0.026
Tanzania	64	2	0.031
Ethiopia	120	5	0.042
Total	397	12.5	0.031



Global South, Africa - Diesel Generators



Diesel Gen. Capacity - Nigeria

Nigeria: ~ 40 GW

BEV Sales - Global North

Germany, 2023: + 4% YoY, 17% of new car sales

Commercialization of H2 - Potential of Domestic African Markets

Short Term

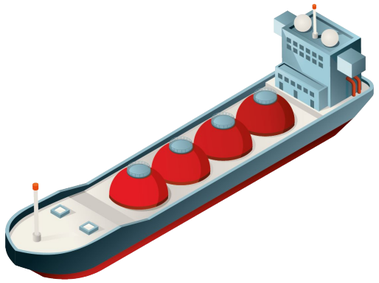
Domestic Markets

Medium Term

Attracting Energy Intensive Industries (FDI)

Long Term

Exporting Green Molecules



Hard-to-Abate Sectors	Type of Markets	Distance to Market	Electric Grid	Cost of Refined Fossil Fuels
- Fertilizer, Ammonia - Ren. Baseload Power - Shipping Fuel, etc.	Cash/Spot	Short	Insufficient, Unreliable	High
Revenues	Offtake Agreements	Cost Advantage	Constraint as Opportunity	Competitive Advantage