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# ENERGY ACCESS: SIX CONSIDERATIONS FROM THE FIELD

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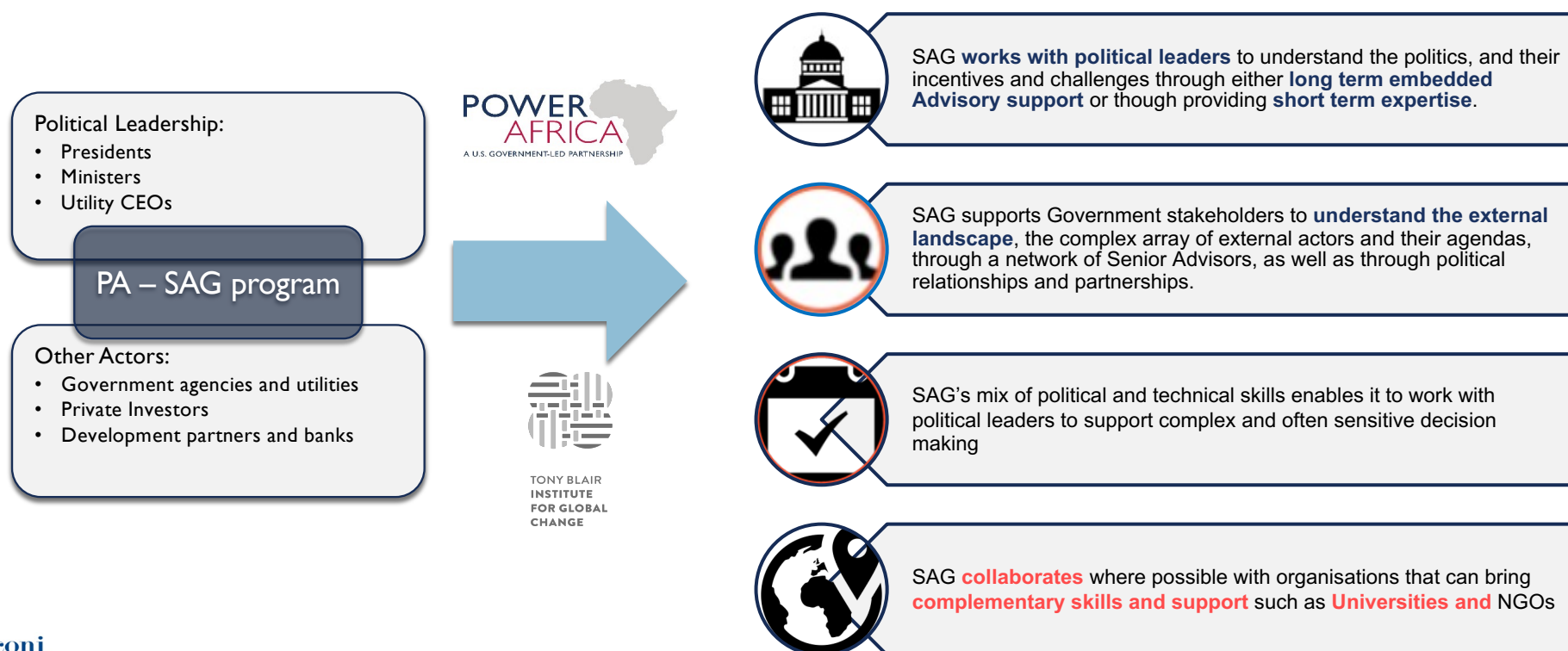
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## PA – SAG PROGRAM

- **Political Leadership** is essential for the development of Sustainable Energy Sectors.
- Making and implementing decisions with **long term implications** is becoming **more challenging and complex** as the array of **competing technologies and financiers expands**
- PA – SAG program focuses on the **intersection between the technical / commercial and the political side of energy.**



# COUNTRIES I WORKED WITH



Sector **strategy development** and **financial modelling**



Establishing **competitive procurement** practices



**Transaction support** and analysis



**Utility reform**



Improving the **regulatory environment**



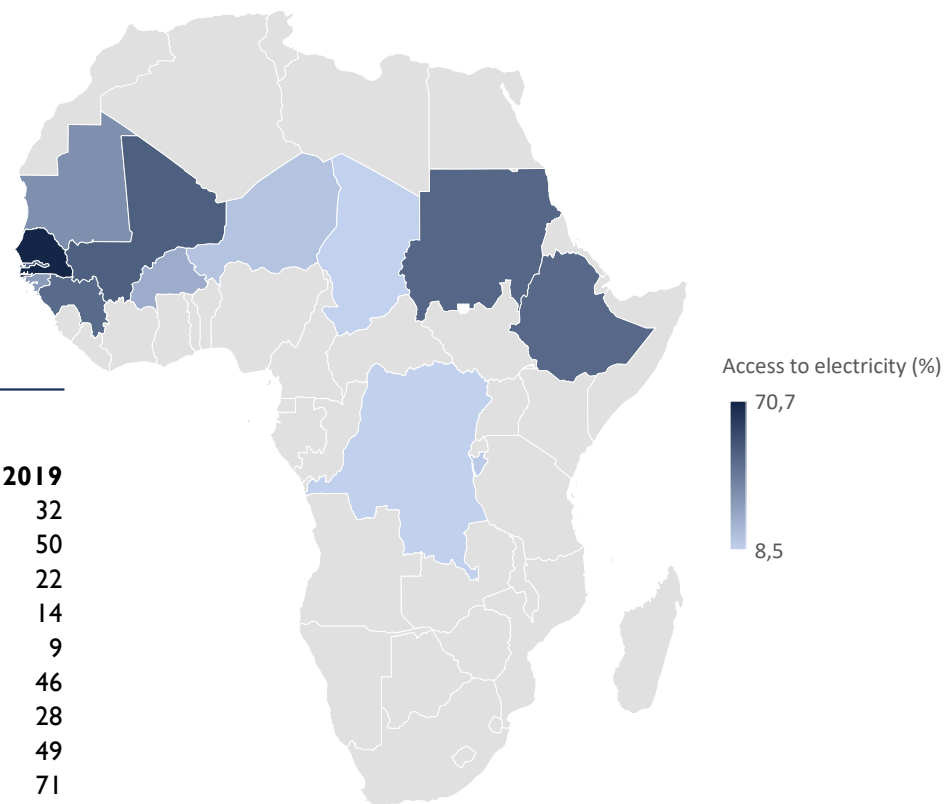
Attracting and securing **investment** for power projects



**Regional integration, planning** and connectivity

## Proportion of the population with access to electricity (%)

Country	2015	2019
Mauritania	29	32
Mali	36	50
Burkina Faso	19	22
Niger	11	14
Chad	8	9
Guinea	29	46
Guinea Bissau	24	28
Gambia	45	49
Senegal	62	71
Burundi	9	11
DRC	9	9
Sudan	43	47
Ethiopia	34	47



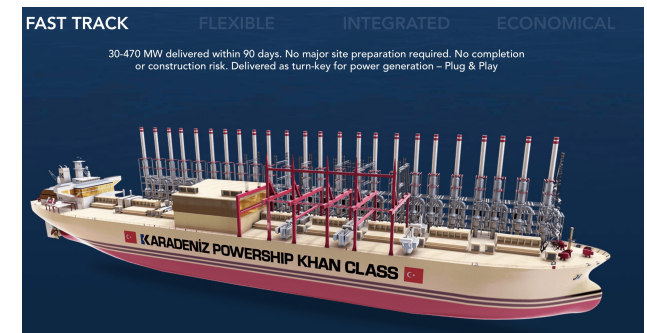
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# SIX KEY ISSUES RELEVANT FOR CLEANER ENERGY ACCESS

1. The donors' scale of preference is not always aligned with Countries' needs
2. Beware of the OPEX trap
3. Load curves and production profiles are not that relevant...
4. Operational rules, technical requirements and market reforms can deliver more cleaner MWs than new RES installations
5. Don't forget Natural gas
6. It's a lot about politics

All these issues, whenever not properly addressed have a straightforward consequence:

- Reduced energy access
- More diesel and HFO consumption
- Increase in the sale of diesel gen-sets



# DONORS' SCALE OF PREFERENCE

- Donors are often in search of “**quick-wins**”
- Their scale of preference depends on a **set of drivers that is applied to all Countries** they operate in
- Countries are very different and their **needs might not be aligned** with those of the donors and that might slow down access

## What drives donors' choices

		Quantifiable targets	Budget Modularity	Private sector involvement	Follow-up and Comms
Donors' scale of Preference	1 (RES) Generation	✓	✓	✓	✓
	2 SHS	✓	✓	✓	✓
	3 Mini-grids	✓	!	✓	✓
	4 Enabling environment	!	✓	!	!
	5 Networks	✓	!	!	!
	6 Cross-border power trade	!	!	!	!

# THE OPEX TRAP

Fragile Countries might not be in the position to sign long-term deals or provide guarantees for CAPEX-based investments

- They cannot access debt facilities
- They cannot provide guarantees

From a State perspective, OPEX-based generation is the easiest way to manage public budget and to avoid debts

- Subsidize in good times
- Arrears in bad times

From an investor perspective, it can be a very efficient way to manage buyer's risk

- Fuel can be sold elsewhere
- Even assets can be easily deployed elsewhere

## LOAD CURVES AND LOAD PROFILES ARE NOT THAT RELEVANT

- They are not that relevant when Countries are in chronic undersupply...
- ... but this lack of awareness might damage Countries when building more capacity
- Politicians often express their power needs in MW and utilities often sign contracts with fixed payments based on capacity:
  - Power plants are expected to operate at full capacity all the time
  - Most of power imports are expected to operate at full capacity all the time
  - There is more experience in managing lack of available power than flexibility and variability
- RES and significant capacity additions require contractual and operational reforms, to avoid the risk of paying for idle capacity and to procure ancillary services

# RULES, TECHNICAL REQUIREMENTS AND REFORMS

Markets are slowly integrating and there is the need to step-up the operational rules and technical requirements

- Many Countries do not have a grid code
- TSOs do not have visibility of real-time power flows (in West Africa, high-voltage network visibility ranges from 60% to 0%)
- Most power plants cannot provide spinning reserve (if it is not contractually required, developers do not invest in spinning reserve)
- All these elements increase network disruptions and the need for distributed back-up generation

Smart Market rules and regulation can deliver immediate success

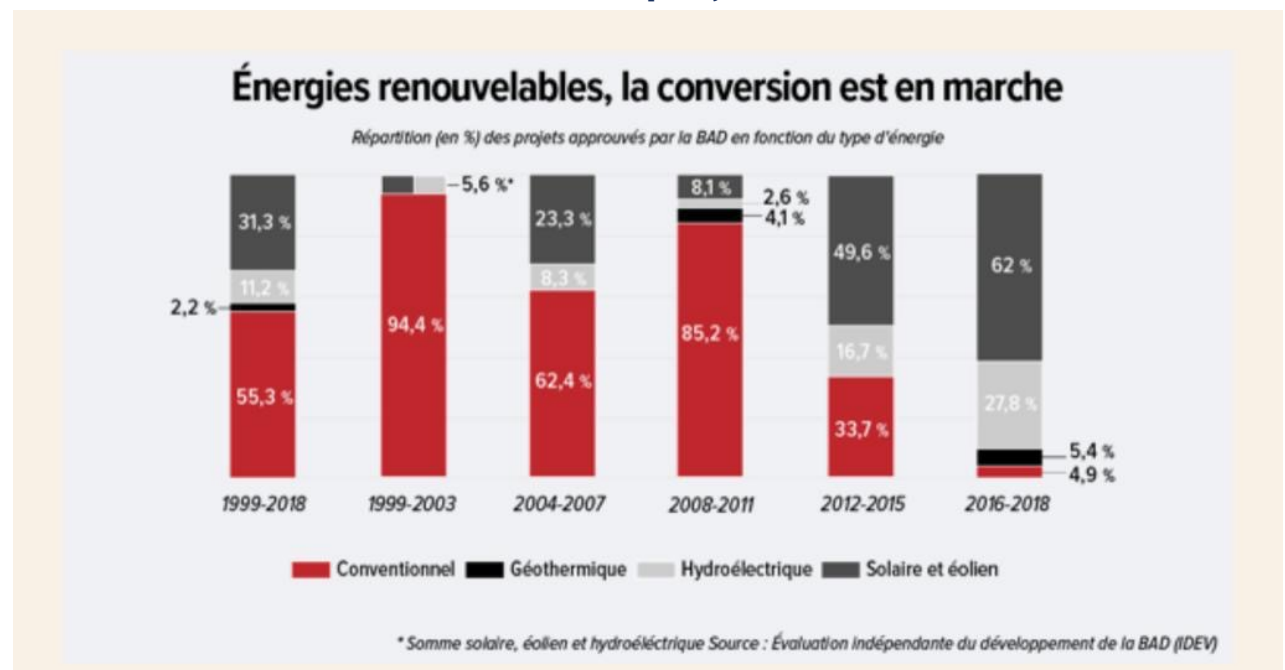
- The recent performance-based tariff reform, introduced in Nigeria in 2020, has increased grid-based consumption by 20% in less than 6 months, drastically reducing the use of back-up diesel generators
- The proposed time-of-use tariff reform in Burkina Faso is making Mining Companies consider switching from self-generation to grid-based generation
- VAT exemption for off-grid equipment is essential to reduce costs for rural electrification



# MAYBE IT'S TOO EARLY TO RULE OUT NATURAL GAS

1. In 2018, SSA emitted 325 Million tons of CO<sub>2</sub>, less than 1% of Global emissions.
2. The Power sector accounts for 22% of those emissions: hence 0.22% of global emissions
3. Should it triple overnight the current generation mix, the African energy sector would still account less than 1% of Global emissions and it would dramatically reduce emissions from gen-sets
4. As y.o.y. electricity demand grows by at least 3%, donors and IFIs cannot rule out conventional gas-fired generation

## AfDB project mix



# THE ROLE OF DIESEL

- Total installed grid-based capacity in West Africa is 25 GW, including 3 GW of utility-scale HFO and diesel generators
- Back-up generators are at least the same capacity
- IN the DRC, the grid-based capacity is 2 GW and back-up generators are more or less the same

FIGURE 1.2: ANNUAL EXPENDITURE ON GRID-BASED ELECTRICITY VS. FUEL FOR BACKUP GENERATORS BY REGION, AND THE TOTAL INSTALLED FLEET CAPACITY, IN AFRICA

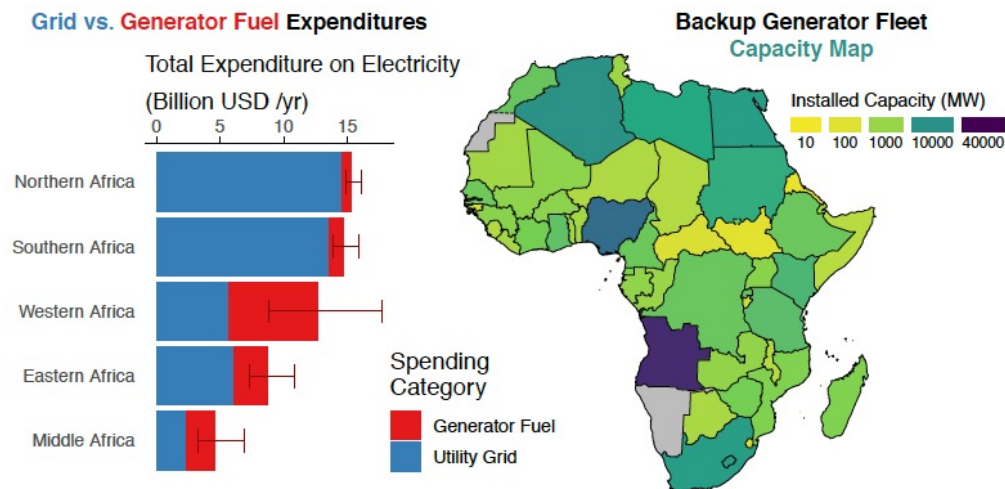
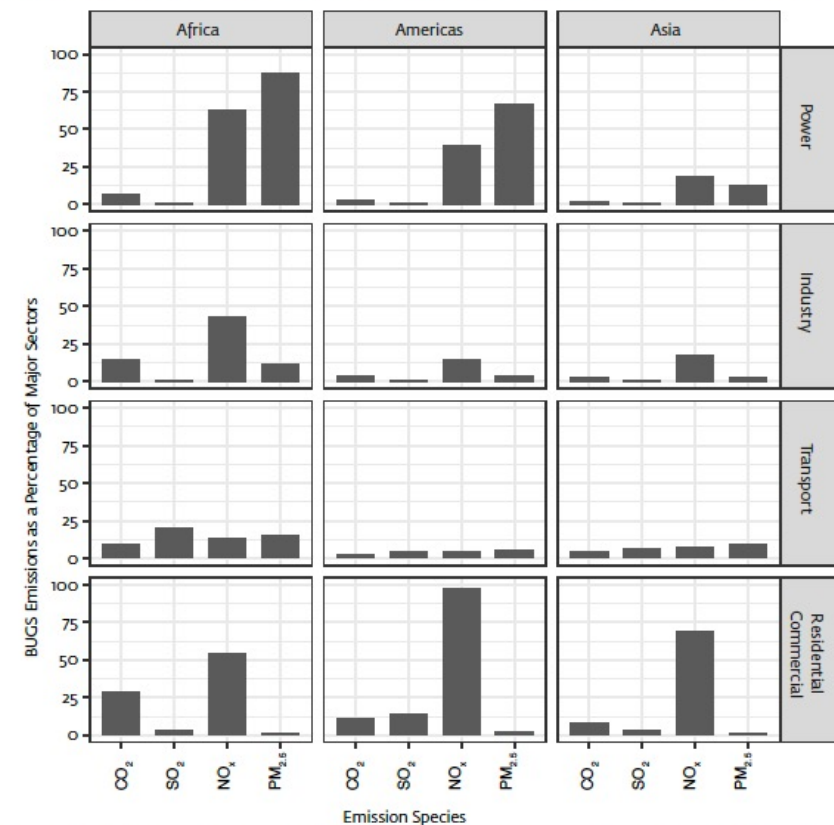


FIGURE 4.16: EMISSIONS FROM BUGS EXPRESSED AS A FRACTION OF TOTAL SECTORAL EMISSIONS IN 2016



Note that BUGS are an emitting source within the Power Sector, so percentages are interpreted as the fraction of total Power Sector emissions attributable to BUGS.

## CONCLUSIONS: IT'S ALL ABOUT POLITICS

- In Africa, power is intertwined with politics:
  - Controlling access to energy helps you hold on to power
  - Access and tariffs are on top of any Government agenda, but that implies that it's more often the office of the President that deals with the sector than more technical bodies
- Understanding the political landscape and the political dynamics could help you in avoiding asking “stupid questions”:
  - Why the President's staff informs the dispatch center about presidential visits?
  - Why does the tribunal of that town allow businesses to connect to its meter? And why doesn't the utility prevent this from happening?
  - Why is there a black-market for load-shedding?
  - Why do we have to force the inclusion of all these power plants into the “least-cost” generation expansion plan?
  - Why does Country A that is exporting power to Country B accept to be paid with a one-year delay?
- And might give you smarter ideas on how to promote reforms and investments...

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*THANK YOU!*

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