

The challenge to combine enhanced innovation investments with quality and continuity of service

Session 3: Watching the Med and Southwards

Challenges and opportunities for accelerate access to electricity in African grids

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Urban population in Africa

Projections



~ 59%

of Africa's population
will live in cities by 2050



950 million

more people will be living in
urban areas in Africa by 2050

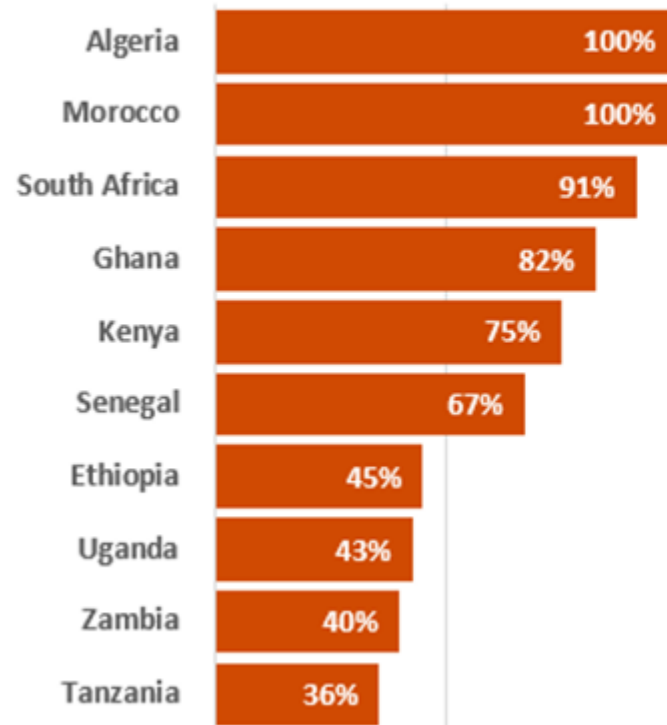


7 of 10

fastest growing cities
2018-2050 are in Africa

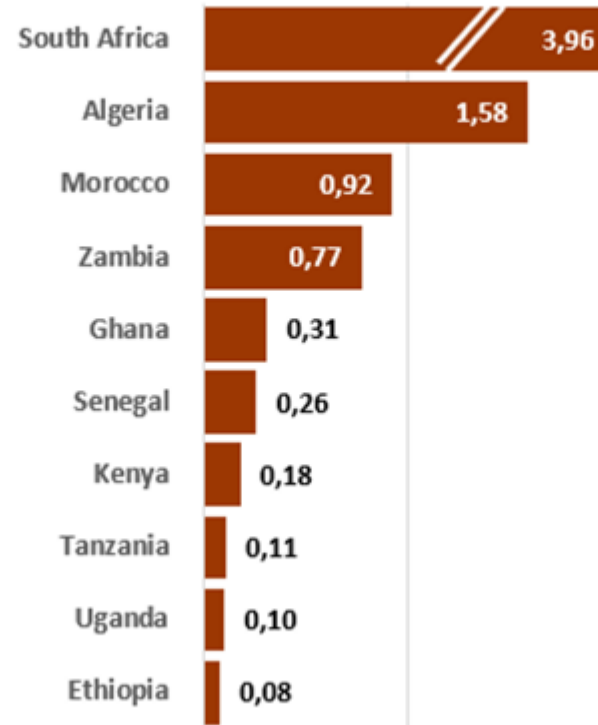
Africa's electricity challenges

Overall electricity access in 2018 (%)



42% of Africa's population does not have access to electricity

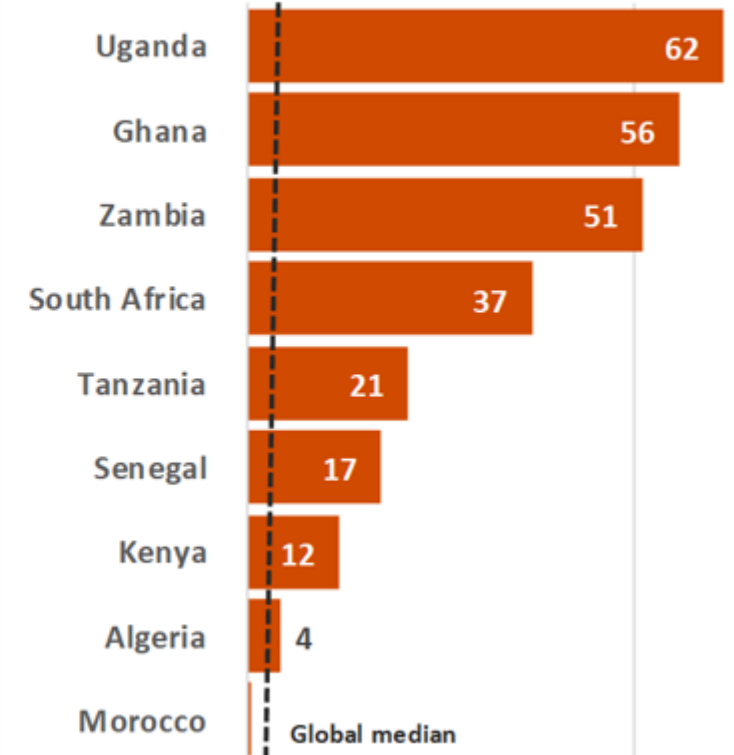
Electricity consumption per capita in 2018 (MWh)



Source: IEA

Those who have electricity tend to use very little of it

SAIDI (hours/year)
Outages and load shedding



Low service quality is estimated to cost Africa about 2-4% of GDP annually



Urban electricity access in sub-Saharan Africa

- Urban electricity access rate is **consistently higher** than rural
- ***Misconception that access to electricity is a challenge mainly for rural areas***

Maintaining the urban rate is **more difficult** access-urbanization and population growth-than **increasing** rural access from its low base

- Living **near a grid** does not necessarily mean that households are connected

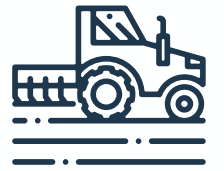


Significant share of households without electricity live near a grid

- ***Possibility to increase access without large infrastructure investments to expand the grid***



vs.

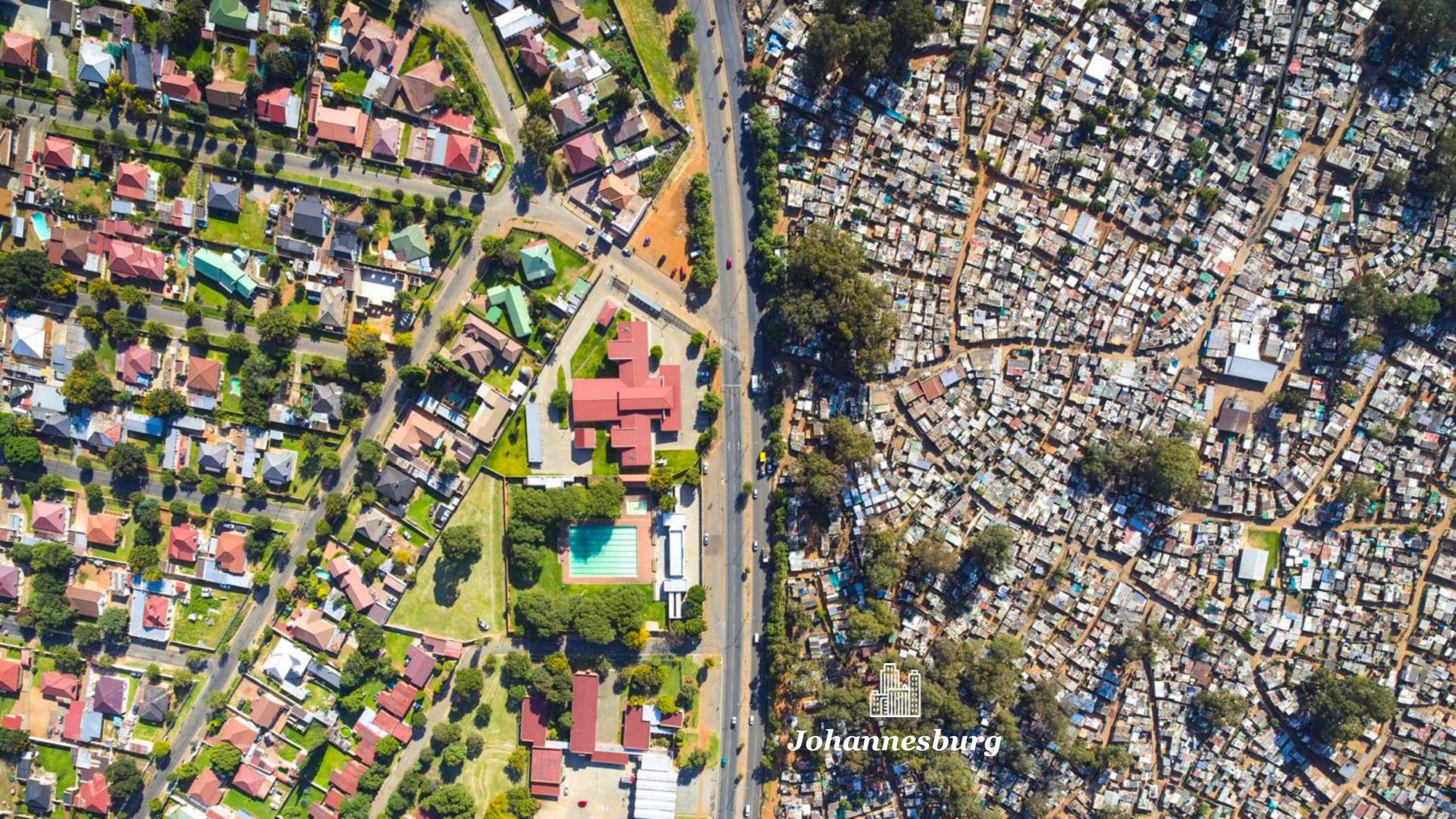


78%
urban
access

27%
rural
access



110 million
living 'under the grid'⁶



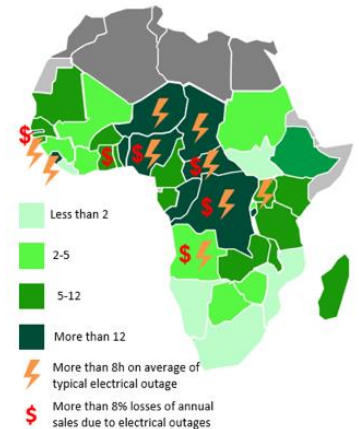
Johannesburg

Why are households not connected?

Connection charges & lengthy processes, unreliability

- **Upfront payment** to connect to the distribution network **very high** relative to yearly household income
- **Connection process** can be lengthy and complex
- Service disruptions **reduce the expected benefits** of connection
- **Poor service delivery** generates distrust: households may question **ability to generate enough income** to recover connection investment

Power outages in a typical month and impact on firm sales

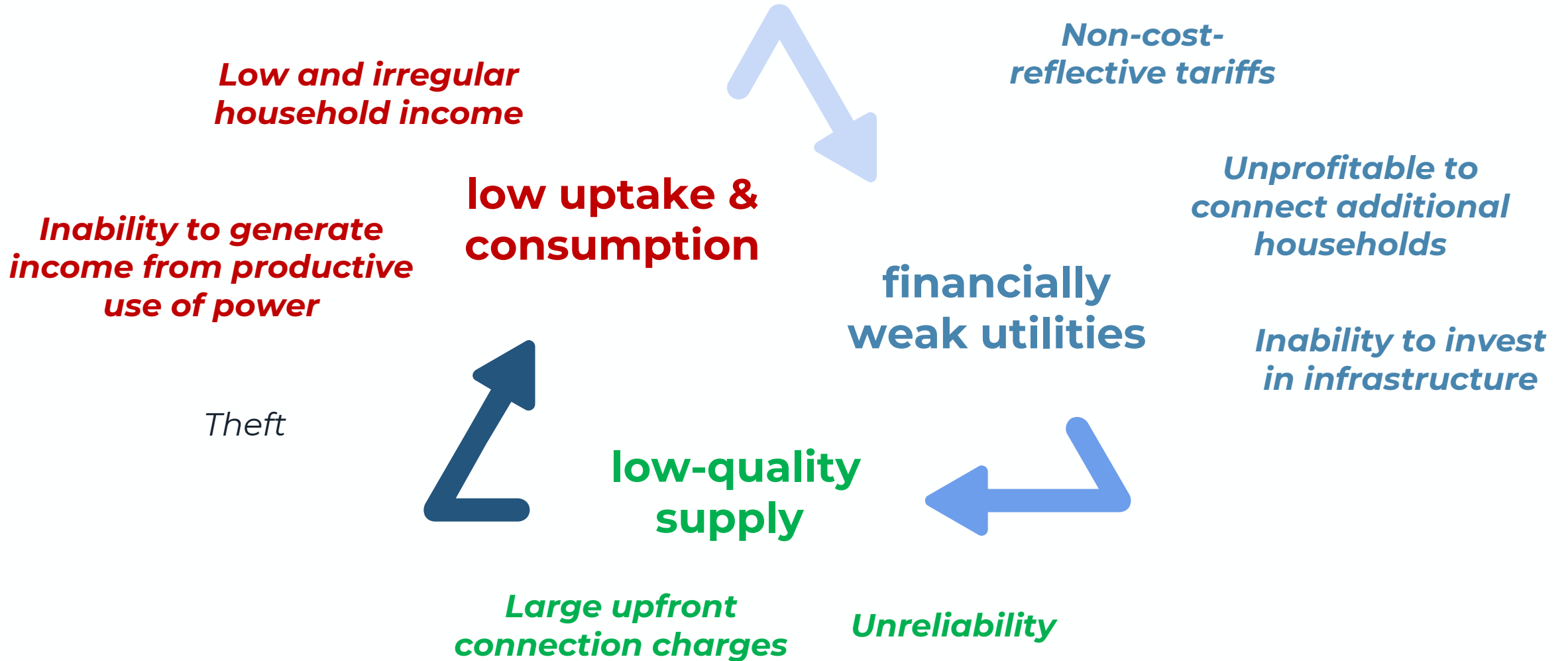


Households may resort to **illegal connections, tamper with meters, or refuse to pay bills**



Theft can exacerbate unreliability by limiting utilities' ability to invest in improvements

A vicious cycle



Distribution infrastructure for sustainable development

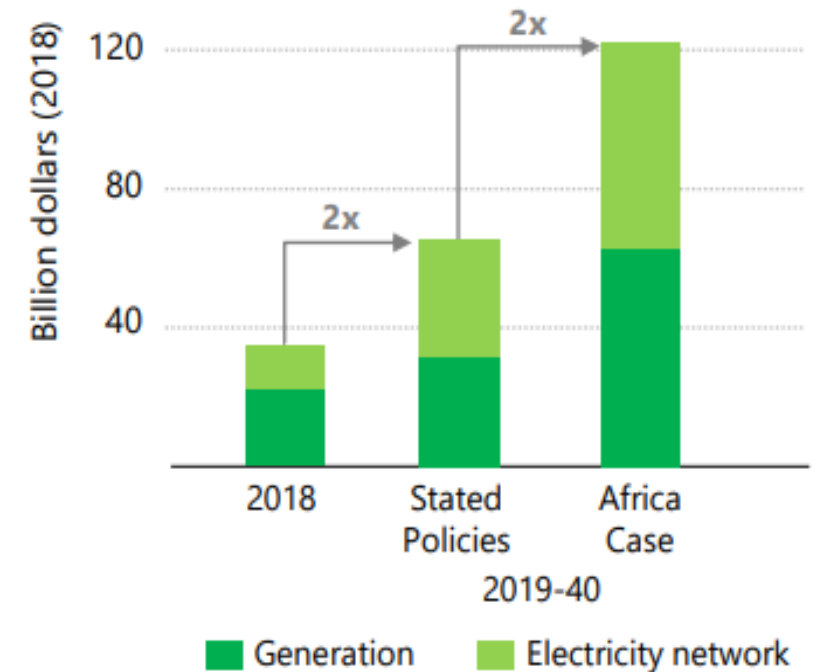
- Africa's rapid urbanization **presents many challenges**

- At the same time, the associated **economic growth** presents DSO with a **rapidly expanding market**

- *Major investments are needed in maintaining and expanding urban and peri-urban grids to exploit these untapped markets*

- **Investment and competition in the distribution segment brings benefits** not only to DSOs but also to the final consumer

Average Annual Power Sector Investment Needs in Africa ⁸

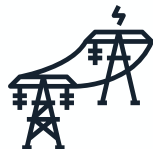


Distribution infrastructure for sustainable development

- Electrification is at the heart of the sustainable growth of Africa's cities
- *Grid infrastructure is the backbone of electricity systems and thus the biggest challenge for renewable energy deployment in Africa*
- Achieving sustainable development goals also requires investments in grid infrastructure **beyond just distribution such as:**



Regional power pools
& interconnectors



Transmission
lines



Minigrid & off-grid
applications



Battery energy
storage systems

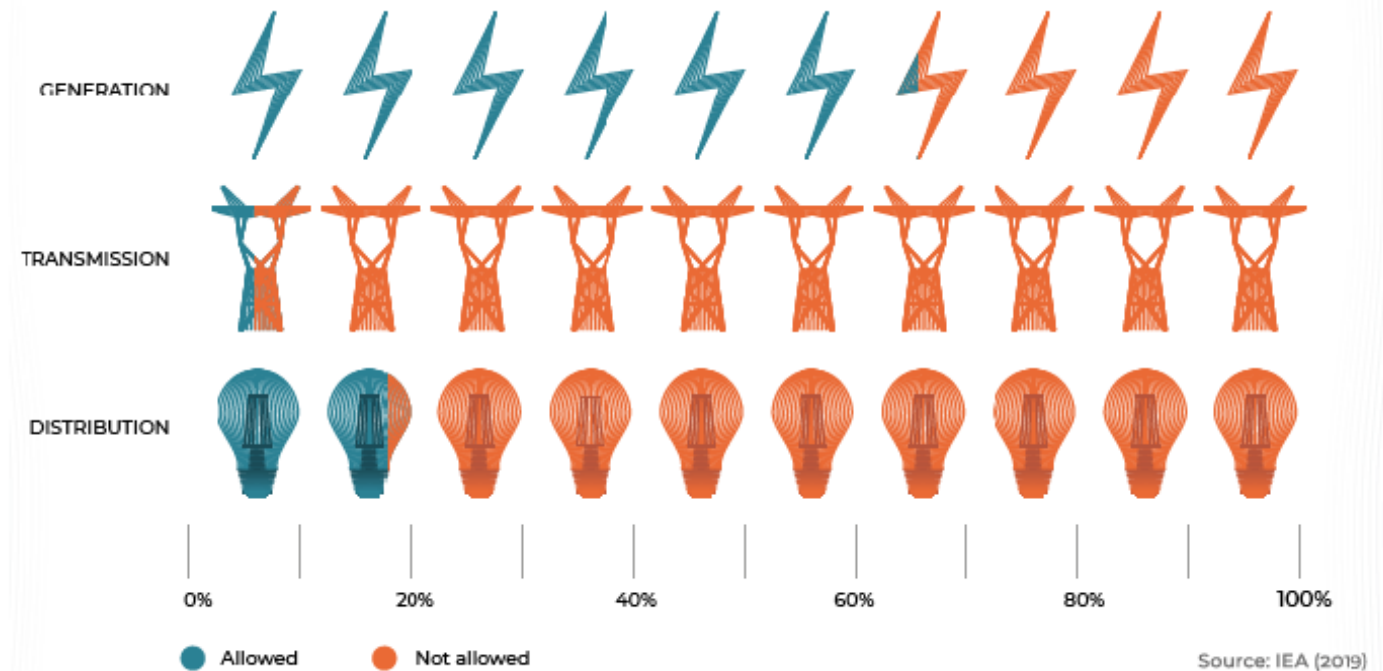


Private participation in Africa's grids remains low

Sub-Saharan Africa's **limited and ageing power infrastructure** poses significant challenges to achieving universal access to energy and successfully incorporating increasing amounts of intermittent renewables.

Although **private sector participation in Africa is growing in electricity generation**, it remains **marginal in transmission and distribution**.

Private participation must increase significantly to contribute to the large-scale investments necessary to address the challenges of the next decade.



Breaking the cycle: bringing in the private sector

Private sector involvement could break the cycle by bringing



Additional financing



Innovation

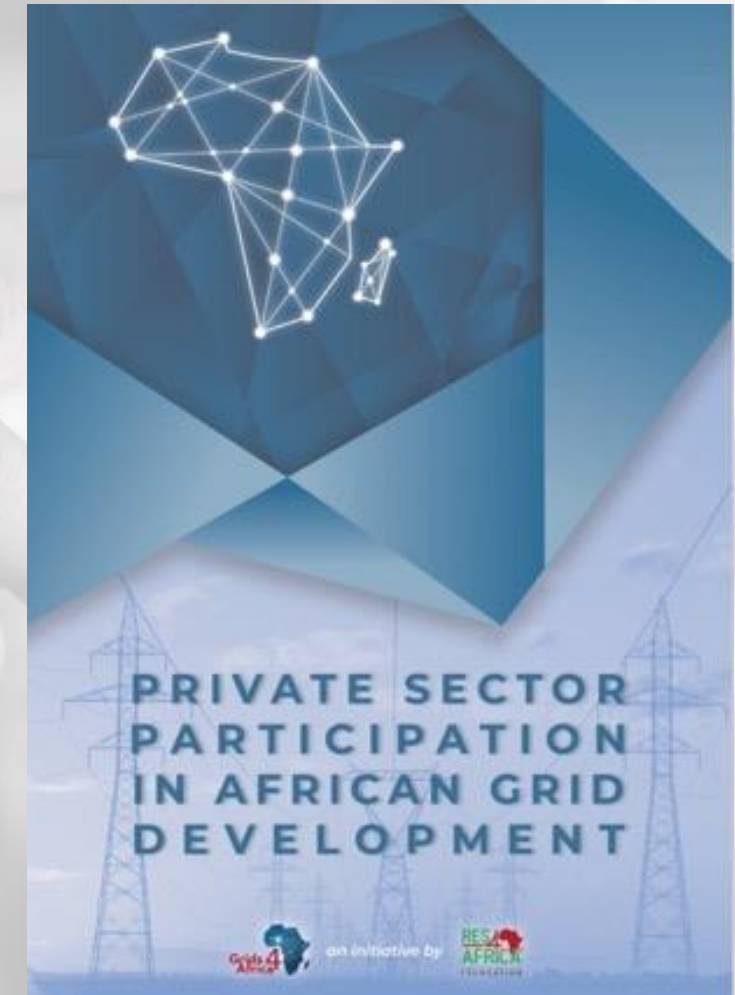


Technical expertise



**Public-private
partnerships**

working towards solutions
together is essential



A new RES4Africa initiative

Areas of activity

Raise awareness
about the importance of
grid infrastructure and
the challenges
associated with grids in
Africa

Support the **development**
of public-private
partnerships to **bring**
additional private sector
resources



Stakeholder engagement &
awareness raising



Strategic analyses &
knowledge dissemination



Grids training course

Financing African Grids
Urban and Peri-Urban Access
Countries Focus South Africa and Morocco

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Thank you!

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