



European
University
Institute

ROBERT
SCHUMAN
CENTRE FOR
ADVANCED
STUDIES

FLORENCE
SCHOOL OF
REGULATION
CLIMATE

The role of PPPs in the energy transition infrastructure financing in Sub-Saharan Africa

Isabella Alloisio, Research Advisor, FSR Energy and Climate
European University Institute

FSR Annual Conference 2021

10 June 2021

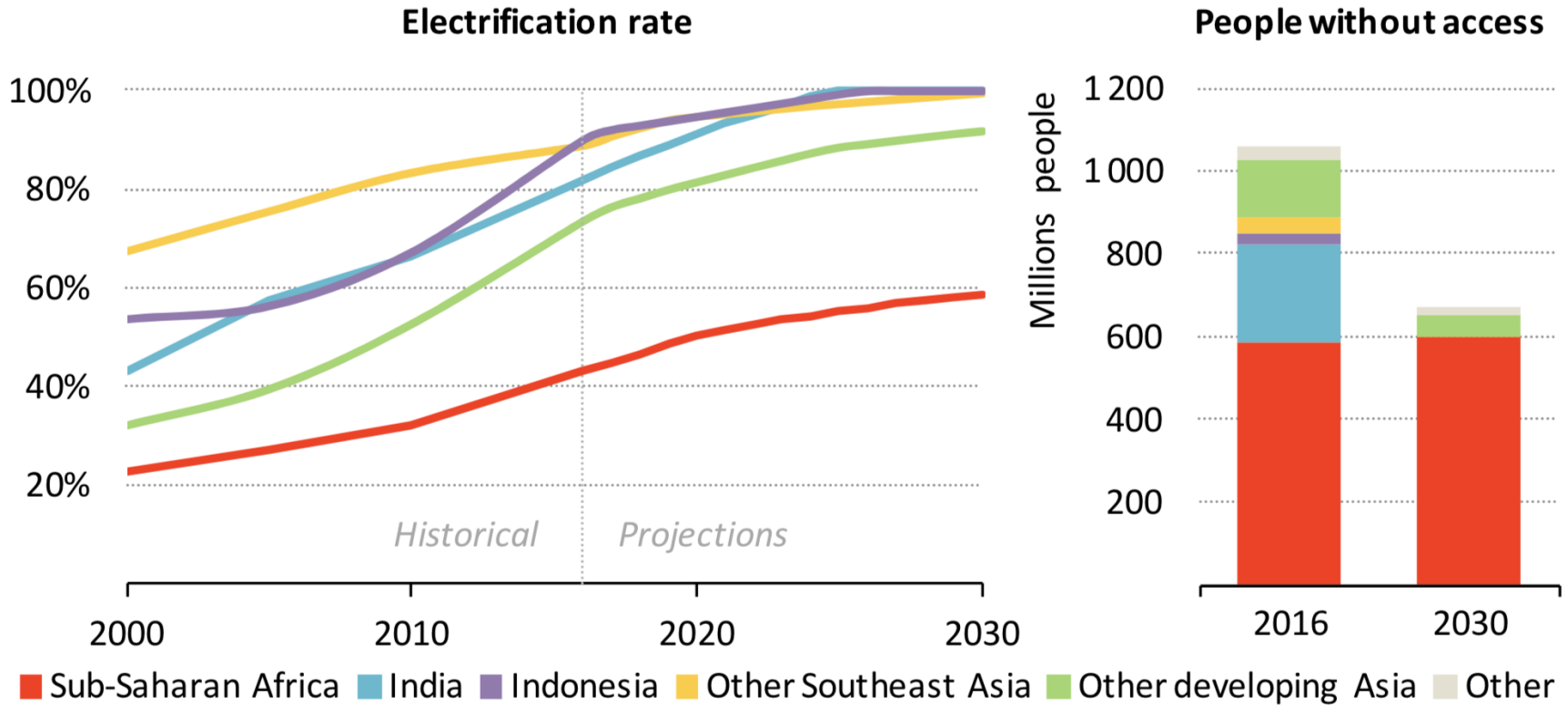
Research Objectives

- The paper aims to analyze and assess the role of Public-Private Partnerships (PPPs) in promoting energy infrastructure investment with the purpose to stimulate energy transition and low carbon innovation in Sub-Saharan Africa (SSA).
- We aim to explore what are the driving factors and the enabling conditions that allow PPPs to be undertaken and whether they lead to the transformation of the energy system towards a more sustainable pathway or, as opposed, if they lock in with traditional energy sources.

Global Projections

- PPPs in infrastructure financing is expected to increase over time, playing a growing role in the future.
- At present the volume of PPPs in infrastructure projects remains modest with respect to infrastructure needs, averaging USD 42 bn globally per year for the last 30 ys.
- SSA represents 5% of the total cumulative volume of PPP investment from 1990 to 2020. This will grow in the future.
- In SSA there have been in total 562 PPP projects, with electricity recording the highest number and volume of investments in the region (298 projects and USD 90 bn). Natural gas counts 7 projects. Water, ICT, transport the rest.
- Of the 674 million people still without access to electricity in 2030, 90% live in SSA (WEO 2017).

Electricity Access by region



- ✓ China achieved universal electricity access in 2015.
- ✓ In India, half a billion people gained access to electricity since 2000.
- ✓ In Sub-Saharan Africa, **48% of the population have access to electricity as of 2019.**
- ✓ **By 2030, nine-out-of-ten people without access will be in Sub-Saharan Africa.**

Source: WEO 2017, Special Report on Energy Access, IEA

Enabling factors

- The **quality of financial and banking sector** plays a significant role in attracting private investors in the power sector infrastructure. Access to affordable long term capital and low project finance default (credit default risk) are key.
- The **quality of institutions**: independent government agencies with well defined roles and responsibilities.
- The **rule of law**: the effectiveness of the judiciary, its predictability and the enforceability of contracts measuring the level of protection of property rights.
- Sound **regulatory framework**: independent regulatory authorities and a trusted dispute settlement resolution.
- **Soft infrastructure**: human capital, technology innovation

Case Studies

- We selected three SSA countries based on geography and n. of PPPs between 2000-2020:
- **South Africa: 95%** electricity access. Rich in coal, gold, and platinum.
- Low level of transparency, but good legal and financial sector and strong public sector skills.
- **91** PPP energy projects, all in RES: 85 under REIPPP.
- **Ghana: 85%** electricity access. High corruption, lack of PPP legal fmk.
- **11** PPP energy projects: 7 natural gas, 3 diesel, 1 gas pipeline. No RES projects.
- **Kenya: 85%** electricity access. Rich in RES: hydro & geo energy. PPP Act '13.
- **22** energy PPP projects, mainly RES (wind & geo.)
- Both K and G: shortage of skilled staff with expertise in risk evaluation, contract design, project financing.

Concluding remarks

- SSA lowest energy consumption per capita, highest energy poverty rate, growing population: growing energy infrastructure need.
- In developing countries the main source of infrastructure financing comes from the public sector (70%), 22% from private and 8% from ODA (Somma and Rubino, 2016).
- PPPs are raising in the last two decades in the power sector.
- MDBs and IFIs play a central role in political, policy, financial and currency risk coverage and act as “blenders” with the aim of crowding-in long-term private finance.
- Domestic finance (commercial banks, financial institutions and regional Sovereign Wealth Funds) is playing a growing role in SSA, especially in off-grid and mini-grid investment solutions to deliver electricity services to rural areas.



European
University
Institute

ROBERT
SCHUMAN
CENTRE FOR
ADVANCED
STUDIES

FLORENCE
SCHOOL OF
REGULATION
CLIMATE

Thank you for your attention

Isabella.Alloisio@eui.eu

Tradeoff I: Climate Mitigation and Energy Prices

- Climate mitigation policies can negatively impact energy access by increasing energy prices.
- In SSA, the highest increase in energy prices happens in regions with large share of fossil fuels in the electricity mix.
 - ✓ Increase by 40% in southern Africa by 2030 (due to dependency on coal in South Africa and on natural gas in Angola, Mozambique and Tanzania).
 - ✓ Increase by 35% in western and central Africa by 2030 (natural gas and hydro).
 - ✓ Eastern Africa has the lowest price increase (25% by 2030) due to the largest share of RES (geothermal, hydro and wind energy).

Tradeoff II: Universal access and CO2 emissions

- Providing universal access in SSA is expected to have a negligible impact on global CO2 emissions.
- Climate mitigation policies could offset this increase by:
- A shift to renewable energies, especially solar PV, wind and geothermal, would allow for a more sustainable and resilient energy supply, affordable energy access and a more efficient water use.
- A coherent carbon pricing policies and consistent low carbon energy investments would allow SSA countries to meet their climate targets, to cope with climate change impacts, and to fill their energy access gap.