

Notes to the rural electrification program in Senegal

Abstract: The note cover existing plans, assesses their outcome and evaluates them according to the requirements of a successful PPP program. The paper also brings in new data on electric demand and financial viability recently obtained through the Data for Development (D4D) award; and addresses how this new information can unblock the ERIL program for small standalone off-grid projects and summarizes a recently launched program.

(Slide-cast/video available at https://www.youtube.com/watch?v=1uXeF-hv_-l)

PPP for rural electrification in SENEGAL

User affordability, inaccessibility, low population densities and dispersed households, low project profitability, and over-dependence on subsidies that grow fiscal deficit make rural electrification a complicated issue

With 196.000 sqkm (1/3 of France or ½ of Japan), 57% of the 14 million population of Senegal live in rural areas. Whilst the GDP per capita is US\$1,046 (2013), over 60% of rural population lives under the poverty line.

56% of the total population has access to electricity, but significantly only 26% of the rural population has access to electricity.

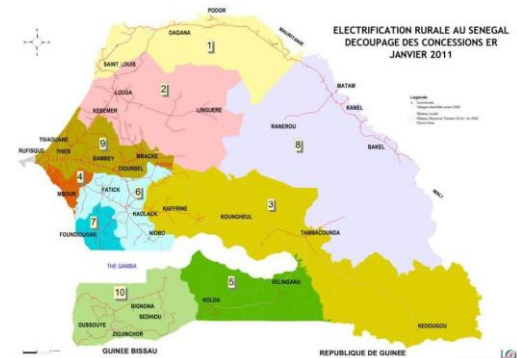
As the Government understands the role of PPP in the Infrastructure Challenge and the role of the Private Sector in infrastructure development, it has put to work know-how and experience of PPPs to mobilize investment from private investors and international organizations.

The Agence Sénégalaise d'Électrification rurale (ASER) was created and put in charge of all matters related to rural electrification.

ASER, developed a two-pronged concessionaire-model:

- The Rural Electrification Priority Program (PPER) for concessions of sizeable areas, offered to national or international utilities.
- Électrification Rural d'Initiative Local (ERIL) for small scale concessions that subsidizes initial investment of local electrification initiatives.

Both PPER and ERIL instruments receive state subventions and significant funds from international organizations and donors.



Regarding PPER, only 6 concessions were signed by 2012 and there are still 2 large concessions to be assigned. The Government has been unable to prove their attractiveness for concessionaires. (Morocco achieved a 95% rural electrification rate in a similar timeframe).

Additionally, even though some concessionaires have started their activities, they will only reach a small part of the rural population, leaving over half the rural area without electricity for the foreseeable future. Indeed, the overall electrification program has only achieved 0.08% of rural households, leaving the vast majority depending on emergency programs & NGOs.

ERIL in turn can only be considered for villages which will not be part of the first three year plan of PPER. Furthermore PPER operators do not favour the build up of other independent operators in the areas granted to them. As a result a final definition of the ERIL framework is still pending. **Hence, the rural electrification issue is not solved.**

The three basic requirements that make a PPP work are **Economics, Politics and Execution.**

1.- Economics requires sound fundamentals and putting in place a structure for the PPP that optimizes cost, quality and service.

Although in theory the two concession models of ASER - large-scale concessions (PPER) and concessions based on local initiative (ERIL)- in conjunction with the tariffs set by the regulatory authority, ensure profitability -including continued maintenance- and hence sustainability, profitability still has to be proven.

Whilst the structure put in place for the PPER ensures the above, Senegal could not provide sufficient information to potential candidates to assess the projects.

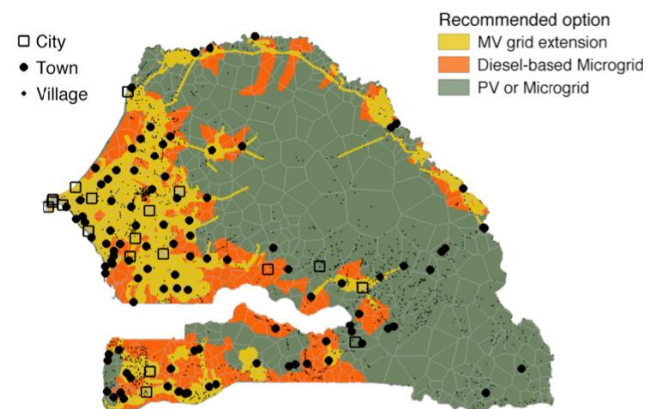
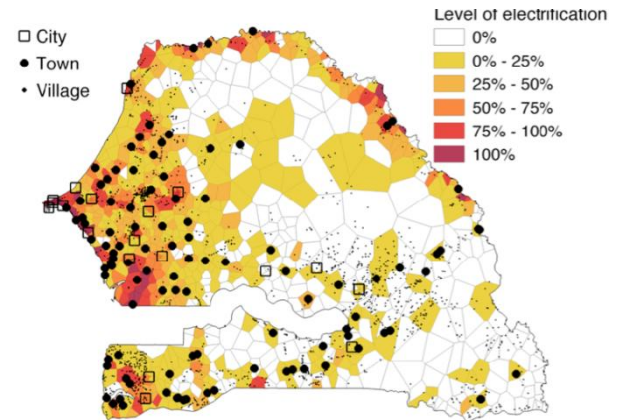
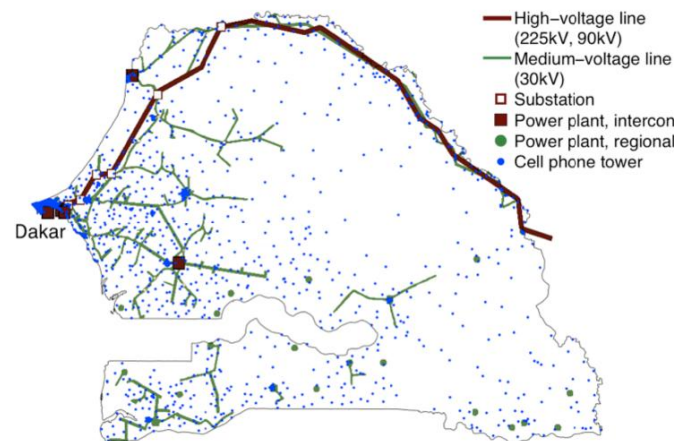
An excellent initiative to solve this issue has been **the D-4-D award, based on making available anonymized Mobile data to researchers on Development practices.**

The first award was granted to a project that crossed data analysis of Mobile use with electricity consumption in electrified areas. It proved the direct correlation between electricity expense and mobile use.

Based on it, the model provides size of the electricity potential market.

The researchers have been able to come up with a proper estimation of the potential use of electricity, which results in a clear map of recommended electricity options and their financial viability.

This new map will change perception and allow the Government to take decisions and put forward the small scale off grid Local initiatives for rural electrification ERIL.



2.- Politics

The second component is politics, which includes:

- (i) securing political champions;
- (ii) building stakeholder support
- (iii) assessing and managing environmental and social impacts; and
- (iv) fostering a stable and supportive regulatory environment.

In the case of Senegal, politics has not work in favor of Rural Electrification.

The projects have had their political champions, including the new President Macky Sall and former president throughout most of ASER's life, Abdoulaye Wade. Also The new Minister for Energy Aly Ndiaye is viewed as supportive of PPPs.

In spite of this, building stakeholder support has proven difficult.

Indeed, the high public profile of the electricity sector and the ASER, together with the Rural Electrification issue appearing recurrently in political discourse makes it a much politicized subject. As a result, continuity of the program is recurrently broken by political authorities' changes, in ASER.

Furthermore, the public utility SENELEC and the Rural Electrification agency ASER have had difficulties to align interests & policies.. This fracture between the two main Senegal public players probably affected the Rural Electrification program.

The described political issues contrast with the limited political pressure from rural populations, which are not as politically active on energy issues as their urban counterparts. Consequently, politicians have attached more weight to the energy issues of demanding urban populations.

Finally, the stakeholder support and the assessment of environmental and social impacts have also proven difficult. PPER concessions attribution process involves eight groups of consultees and seven separate consultation processes. Originally expected to account for approximately 130 days of a year-long process, in reality the attribution process for the first concession took five years, with extensive negotiations between stakeholders accountable for long delays.

3.- **Execution** requires (i) the right mix of local and global experts, (ii) support a transparent, competitive bid process and (iii) plan for ongoing contract monitoring and review.

In the case of Senegal the technical capacity of ASER and the wider Senegalese energy sector has been questioned. ASER may have been overly-dependent on CRSE for technical support in its early days, and SENELEC is thought to be too reliant on European industry standards, often superfluous to the needs of Senegal's rural installations.

Although the principles and procedures followed in the bidding processes have been competitive and transparent, foreign investors' lack of interest has de-facto narrowed the number of applicants reducing the effectiveness of the process.

Following this analysis on the Economics, Politics and Execution, we can see that even though the electrification program has proactively tackled many issues, it has encountered difficulties to gain momentum.

The lessons learnt and the new information available are enabling Senegal's authorities to advance the Rural Electrification program and to achieve its objectives.

From private investor's point of view, the access to real data will enable sound feasibility & viability studies. This in turn will open the door to reactivate private investment in both PPER and ERIL.

However, the inherent conflict of ERIL projects stepping into PPER areas under concession must be addressed by the government to set a clear framework that enables private investors to raise funds.

4.- Recent events:

A new Rural Electrification program based on renewable energy has been DEP South east Senegal project has been launched funded by the ACP EU Energy facility and the Islamic Development Bank

The « Développement durable par les énergies renouvelables (DPER-Sud Est Sénégal)» or DPER-SE , aims at covering the energy needs (lighting, audiovisual, domestic appliances) in 3,000 rural households in 40 villages (40 PV systems of a capacity of 20kW), accompanied by the installation of 2 to 3km mini-grids. The project also foresees and at creating 20 areas of business (or alternatively 150 micro enterprises) and approximately 100 community centers (including schools, health clinics, churches, mosques and youth centers) and provide local population with training. The project counts to achieve the scaling up of the ERIL.

(<http://database.energyfacilitymonitoring.eu/acpeu/project/4619/>
