

Scaling Solar Experience in Senegal:

Keys Facts, Lessons Learned and Challenges



KEY SUCCESS FACTORS

A turnkey approach	A strong focus on standardization	Reduction of risks and price reduction while ensuring success
<p>The entire World Bank Group (WBG) for a set of solutions:</p> <ul style="list-style-type: none"> • Advice • Expertise in calls for tenders • Documentation • Competitive financing and insurance • Risk management and credit enhancement <p>Designed by both government and developers;</p> <p>The WBG's skills and lessons learned from its global experience.</p>	<p>Documentation prepared and adapted to local needs to speed up project implementation,</p> <p>Standardization across multiple geographies creates a single, «virtual», large-scale market to attract the best bidders on the global market.</p>	<p>Coordinated execution enables the needs of public and private actors to be met,</p> <p>Projects primarily de-veloped to minimize risk for developers and government,</p> <p>The World Bank Group offers debt, in-surance and guarantee products to reduce in-vestor risk and re-quired returns.</p>



1. PRESENTATION OF THE 'SCALING SOLAR' PROGRAMME

1.1 PROGRAMME SERVICES

The Scaling Solar programme combines a series of services from the World Bank group in the framework of a commitment envisaged to create viable markets for solar energy in each client's country. To this effect, the 'One Stop Shop' programme would look to make solar projects operational. Said projects would be privately financed, and connected to the network within a maximum of two years at competitive tariffs.

In concrete terms, this programme has been built around the following:

1. Consultation: evaluation of the optimal size and placement of photovoltaic solar centres in the electrical network of a country
2. A fast and simple call for tender: this is in order to guarantee strong participation/competition from industrial investors already engaged in large-scale projects
3. Fully prepared templates and documentation: some documents for bankable projects have already been pre-formatted with the aim of eliminating the negotiation processes and thus speeding up financing
4. Competitive financing and insurance: these tools are attached to the tender procedure and available to the bidders. They allow, according to the designers of the programme, to launch a competitive tendering process and to assure rapid financial closure.
5. Risk management and improving credit: this approach looks to reduce the financing costs and to provide electricity at the lowest possible prices



1.2 Possible Advantages for Stakeholders

The ‘Scaling Solar’ programme, according to the designers, presents certain advantages for the principal bidders such as the country’s public authorities. This is where it could develop, including the possible project developers and backers, as follows:

1.2.1 Advantages for governments and public services

1. Speed : having some standardised processes and documents allows rapid launching of calls for tenders and closing financial records without having to endure delays associated with de-velopment of projects and negotiation of contracts
2. Certainty : some ‘balanced and bankable’ documents that could be proposed on a non-negotiable basis with the ‘comfort’ of pre-approved financing, attached to the call for tenders and available to all tenderers
3. Competitive tariffs and fixed tax rates: tender calls designed to get engagement from in-dustrial investors in a competitive process, reduced transaction costs and financing conditions that would be competitive in order the lower kWh tariffs on sale

1.2.2 Advantages for project developers and investors

1. Creating markets : the opportunities in the solar domain for the vast majority of Africa are either in their infancy or simply do not exist, but the tender calls are regular and bankable documents could open some regional opportunities to qualified developers, and would be on the look-out for new markets
2. Reduction of development time and costs: the lowering of what is known communally as ‘transaction costs’ happens by launching tender calls for sites identified with ‘due diligence’ requirements, technique/approval measures already put in place, and all this with non-negotiable bankable documents plus pre-approved finance models

3. 'Equitable' conditions for competition: an allocation process that aims to be straightforward and transparent. This would allow both promoters and investors to compete with each other on the basis of the lowest tariffs possible, as well as a long-term commitment to African nations

1.2.3 Advantages for international backers and development partners

1. Scope : support for a number of low-income states that are fragile and sometimes affected by conflicts, in order to assure energy security thus a sustainable growth with low carbon intensity

2. Leverage : support for donors/backers will allow them to obtain large amounts of private capital on the basis of calls for tender that are transparent and competitive

3. Impact : rapid provision of clean, low-cost electricity with a relatively short lead time of no more than two years from the time the programme commences to the construction of the solar power plants, to help African countries meet the urgent demand for energy.

1.3 Roll Out of the 'Scaling Solar' Programme

The programme is planned to roll out in five successive phases over a total period of around 18 months in line with the following framework:

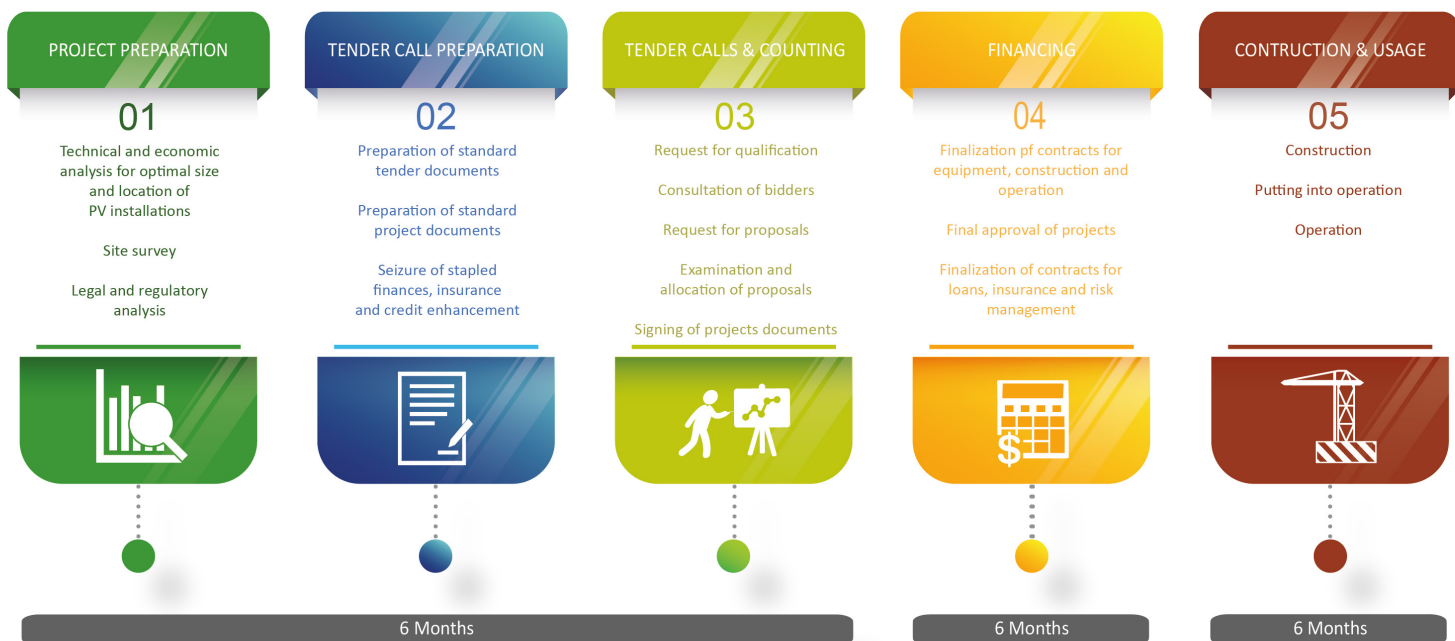


Figure 1: Overview diagram of the 'Scaling Solar' programme roll out

2. Implementation of the 'Scaling Solar' Programme

In concrete terms, the implementation of programme's transitional phase in Senegal started off in February 2016 and was completed with an announcement of the tender results in June 2018. These correspond to phases 1-4 as explained in figure 1 above. This was followed by the construction phase of the two power plants at Kael (25 MW) and Kahone (35 MW). The start of operation is set to be for the end of 2020.

2.1 Implementation of the Tendering Process

The programme was officially launched in February 2016 with the mandate being signed with the IFC. Many stages followed and these are detailed below leading up to the final contract aware in April 2018.



Figure 2: Principal stages in the implementation of the 'Scaling Solar' programme in Senegal



The call for tender for development, finance and usage of the two solar photovoltaic centres, with a total of 60MW, was launched in August 2018. The locations are given in the following image:



Figure 3: Location of the two sites in question from the call for tenders

Three key criteria were kept in order to form a restricted list of companies to pre-qualify thereby allowing them to submit a technical proposal and offer. These criteria can be summarised as follows:

- 1. Proven technical experience:** conception, development, construction and usage of one or several solar electricity centres of a comparable commercial size
- 2. Guarantees of financial solidity:** in order to prove the requisite financial capacity to carry out the project from beginning to end. This includes the correct completion of works at the usage phase
- 3. Conformity of offers:** required legal form and constituent documents

Statistically speaking, this call for tenders has elicited some interest from figures in the photovoltaic solar industry. Since then, the granting authority has counted no fewer than 140 expressions of interest, of which 28 pre-qualification dossiers were submitted to form a collective of 13 pre-qualified bidders. There were 14 bidders for the second site.

2.2 Results of the Tendering Process

The financial proposals were quite tight, and two submission were at the top of the list. Both were extremely close were only differentiated to the third decimal place: Kael in particular.



The ENGIE/MERIDIAM consortium won the tender for the two sites with the following tariff proposals:

1. KAEL : 3,9831 c€/kWh, or 26,1274 FCFA/kWh
2. KAHONE: 3,8016 c€/kWh, or 24,9368 FCFA/kWh

The project promoters consider the pricing proposed for these two sites is competitive for the national electricity provider, SENELEC. These prices are to evolve as follows:

1. On average 25.53 FCFA/ kWh for the 2 power stations (1st year)
2. An annual indexation of 1.2%
3. A 40% discount during the period of early commercial operation of the power plants.

This evolution in tariff pricing is summarised below:

(FCFA / kWh)	Kael	Kahone
Tariff on the date of entry into operation (1st year)	26.13	24.94
Tariff in period of anticipated entry into operation	15.68	14.96
Tariff for the last year of operation (25th year)	34.79	33.20

The feedback from the consultant is contrary to the current trend seen on several projects developed in Africa. The starting price per kWh is relatively high and subject to constant annual discounts over the lifespan of the project.

The consultant is of the opinion that this inversion of paradigm for regional tariffs (and more globally) presents a certain risk regarding the capacity of the project company to meet its repayment requirements. In the case of a major issue at a power plant, which prevents it from producing power, and thereby prevents it making an income in order to honour its debts.

Documentation and Dissemination of the World Bank's

Scaling Solar Experience in Senegal

IMPRINT

ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)
Achada Santo Antonio
C. P. 288, Praia,
Cabo Verde
www.ecreee.org

March 2021

With the Support of: the regional programme *Improving the Governance of the Energy Sector in West Africa (AGoSEREE-AO)*

All images are for illustrative purposes only, ECREEE and GIZ disclaim all liability related to the use of these images



This Project is Developed with the
Support of the European Union



cooperation
germany – ecowas

ZUSAMMENARBEIT DEUTSCHLAND – ECOWAS

ECREEE would like to thank the staff of the Ministry of Energy of Senegal, as well as all other interview partners for their time and efforts that made this publication possible.

This publication and the material featured herein are provided as is, for informational purposes. Neither ECREEE nor European Union, GIZ or any of their officials, agents, data or other third-party content providers provides any warranty as to the accuracy of the information and material featured in this publication, or regarding the non-infringement of third-party rights, and they accept no responsibility or liability with regard to the use of this publication and the material featured therein.