Terms of Reference

Consultancy:
Improving the Efficiency of Solar PV Procurement in the Framework of IPP(s) in the ECOWAS region

November, 2019

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1. Background

ECOWAS Member States are beginning to garner experience in competitive tendering (bidding) process for procuring utility scale solar photovoltaic (PV) projects following successful development of a number of Independent Power Producers (IPPs) in the last five years. According to data in ECOWREX[1], presented in Table 1, there are 18 operational solar PV projects in the region, with a total capacity of 258.6 MW, and 28 additional projects of 758 MW at planning stage[2].

Table 1- Some Operational and planned grid-connected solar PV projects in ECOWAS Member States (2015 -2019)

	Operational		Planned	
Country	**Number of projects**	**Total capacity (MW)**	**Number of projects**	**Total capacity (MW)**
Benin			5	75
Burkina Faso	2	34.1	2	30
Cabo Verde	3	12.8	2	15
Cote d'Ivoire			3	128.5
Gambia			2	10.5
Ghana	3	42.5	1	100
Guinea				
Guinea-Bissau			1	20
Mali			4	158
Niger	1	7		
Nigeria	1	1.2	3	150
Senegal	8	161	3	90
Sierra Leone				
Togo			2	120
Grand Total	**18**	**258.6**	**28**	**758**

Table data Source 1: *ECOWAS observatory for Renewable Energy and Energy Efficiency (ECOWREX)* *http://www.ecowrex.org/resources/projects*

Table data Source 2: *Solar Corridor Strategy Document under the West Africa Clean Energy Corridors (WACEC) Initiative ECREEE, 2019*

Competitive tendering (bidding) process is becoming the preferred method by policy makers for Renewable Energy (RE) procurement in Sub-Saharan Africa. They offer a cost-effective approach to support RE deployment and promise a number of advantages such as flexibility, transparency, competitive prices and more controlled project inflow including efficient coordination in-between the planning and procurement stages of adding generation capacity. Many ECOWAS Member States are now experimenting with competitive tendering (bidding) process aiming at reaching these positive outcomes.

In addition, RE competitive tendering (bidding) in ECOWAS has mainly focused on solar PV due to many factors including rapid decline in cost, natural resource availability and the heightened experience from other regions around Africa like Morocco, Zambia, and particularly South Africa.

[1] ECOWAS observatory for Renewable Energy and Energy Efficiency, www.ecowrex.org

[2] According to ECOWREX: Operational projects: projects that have been commissioned and are producing electricity. Planned projects or Projects in planning stage: projects under construction or were funding has been approved, or an official tender process has already started.

Before then, Feed-in tariffs (FiTs) have been the most widely used support mechanism to encourage the growth of grid-connected renewable energy. However, parallel to conducting tenders (bids), some countries continue to sign Power Purchase Agreements (PPAs) with developers making unsolicited bids while others still rely on the feed in tariff system. In this instance, creating a lot of uncertainty for investors and usually resulting in lack of competition, lack of transparency and thus higher electricity tariffs. Although further evidence from the region is required to substantiate this, as other factors such as inadequate policies and measures for RE development, poor credibility of off-taker, lack of guarantees/risk mitigation schemes and poor design of competitive tendering (bidding) itself may contribute to the problem of non-competitive and high cost of electricity prices.

While progress has been made in a number of countries in terms of successful tendering (bidding) process, for instance, some ECOWAS countries that have finalised RE IPP tendering processes since 2013 include Côte d'Ivoire, Burkina Faso, Ghana, Mali, Senegal, Togo, Cabo Verde and Nigeria. Many countries still face difficulties in implementation.

Also, a major determinant of any successful competitive tendering (bidding) process is the final bid offer or the bid price. In the case of RE procurement, a bid price is a price per kWh of electricity at which the project can be economically viable. Apart from Senegal, that has achieved remarkable results in terms of producing solar power at the cheapest rate (4 euro cents per kWh), through a competitive tender process under the auspices of the World Bank Scaling-Solar Program, for other countries, solar power prices through tendering process remains very high due to several factors. . Before the successful experience of Senegal , tariffs from initial RE IPP tenders in the region were in a range from 12.0 to 13.4 c€/kWh.[3]

Some of the key challenges manifested in competitive tendering (bidding) processes in West Africa include:

- **Lack of Policy, Regulatory and Institutional Mechanisms(in some countries):** Some countries are yet to put in place basic requisite policies to support investments in capital-intensive renewable energy deployment such as tax incentives, tariff regulations, basic contracting frameworks etc. Although competitive tendering or bidding can still occur in the absence of these policies, however, it often results in lack of an open playing field for investors.

- **Institutional Capacity:** In many countries, institutional stakeholders in charge of energy sector procurement (ministries of energy and finance, utilities, regulators, etc.) have limited capacity to design competitive tenders, or auctions, and manage structure and negotiate tenders and private power concessions thereby affecting feasibility and quality of the procurement process.

- **High Perceived Risks:** Poor credit utility off-takers increase the cost of capital, driving up tariffs.

[3] The tariff proposed by the winning bidder participating in the Scaling Solar tender in Zambia was US$0.0602/kWh (non-indexed).

- **Lack of Political Stability and Continuity** has significantly delayed the tendering process in several countries.

- **Weak National Grids:** Many small national power systems do not have the ability to integrate large shares of variable renewable energy (VRE) generation, leading to problems in the connection of the projects or the injection of into the grid.

- **Lack of Scale and Poor Regional Interconnections:** Prevents the economies of scale needed to upscale renewable energy in general. Many investors maybe deterred by having to navigate small and distinct power markets. In addition, local demand might be lower than the potential supply from solar PV, requiring a fully interconnected regional grid to enable trade as well as regionally available dispatchable back up capacity and storage.

2. Objectives

Therefore, in the framework of the West African Clean Energy Corridor (WACEC) Initiative, ECREEE, with the support of USAID, aims to address the constraints and challenges affecting successful competitive tendering (bidding) procurement process for renewable energy in the West African region in order to promote and put in place a region wide framework for bulk procurement of utility scale solar PV energy projects.

The specific objectives are as follows:

The consultants will first:

- Analyse existing utility scale solar PV procurement practices in ECOWAS Member States; the scope of projects should be within the Range to 5 MW and above.
- Analyse factors that have contributed to successful procurement of solar IPPs in some West African countries;
- Identify the right conditions for the use of tenders and competitive bidding for utility scale solar PV procurement given the existing practices and successful approaches;
- Examine the role of and the conditions that enable competitive prices in a competitive procurement process, and the barriers that remain to achieve competitiveness.
- Specifically assess the importance of scale as a determinant for competitive prices of solar IPP projects in the region.

The consultant will then:

- Analyse the pertinence and feasibility of a solar PV bulk procurement scheme for the ECOWAS region against the existing challenges.
- Propose a design for such a scheme including analysis of relevant Institutions and stakeholders inherent to successfully implement the scheme.

3. Tasks

3.1. Inception stage

The consultant(s) will have a debriefing meeting with ECREEE and USAID by using the best available virtual platform to discuss the assignment and achieve a common understanding of the work ahead and the deliverables required.

The consultant(s) shall then proceed to develop an inception report within 2 weeks, which will describe the clear and detailed concept, analytical framework, methodology, tools, and execution plan for undertaking the assignment. The report will also include a list of documents, data and information needed, a proposal of projects and countries selected for deeper analysis (as per task 3) and a proposed list of key stakeholders to be consulted and/or interviewed. ECREEE and USAID shall provide comments on the report. The final inception report would be the guide book for the assignment onwards after approval by ECREEE.

3.2. Inventory of Solar PV Procurement Methods in ECOWAS

The preparatory stage will also take stock of all the procurement methods used in procuring grid connected Solar PV projects having reached commercial close in the ECOWAS region in other words, projects were a Power Purchase Agreement(PPA) has been signed and the project is already in development or operational phase. The inventory should also include project tenders planned in the region in a separate analysis noting the type or method of tendering (bidding) process envisaged.

The consultants will work with the national utilities and regulators to gather data on

- Awardee [local vs international awardees];
- Procurement method [competitive tender vs uncompetitive process]
- Type of tender;
- Structure of the SPV
- Year of commercial close
- Year of financial close;
- Total duration of the process
- Funding Institutions and sponsors,
- Type and nature of guarantees and payment mechanisms put in place as well as counterparties: escrow accounts, partial risk guarantee, other private guarantees, and insurance mechanisms, sovereign guarantee deployed etc.
- Penalties if any;
- Year of start of operations;
- Installed capacity;
- Annual energy production;
- Duration of PPA
- Electricity prices proposed
- Number of competing firms;
- Other relevant information
- Etc.

The main output in the preparatory stage will be an analysis of the different procurement methods used in the ECOWAS region and showing the relation to achieving lower electricity prices between competitive tenders compared to other mechanisms.

3.3. Pertinence of Scale and Other Factors to Achieve Competitive Tariffs

Drawing from the benchmarking data in the preparatory stage, the importance of project scale driving competitiveness of electricity prices from solar PV plants will be examined. Key stakeholders to be contacted will be a sample of at least 5 operational projects for which the power price is known:

- Project developer
- Off-taker/utility
- Finance providers: lenders and sponsors
- EPC, O&M contractors

The pool of projects considered will focus particularly on those achieving very competitive prices, and those achieving tariffs very much above the average. During the analysis the role of scale in bringing costs upwards or downwards will be particularly explored, but other cost factors will also be taken into account including suggestions to address all existing factors driving costs upwards.

3.4. Legal and Operational Feasibility of a Bulk Procurement Scheme

If lack of scale is deemed as a significant element driving solar PV costs upwards in the region, the legal and operational feasibility of implementing a bulk procurement scheme, nationally and regionally will be examined and a possible concept on how this could be operational will be developed.

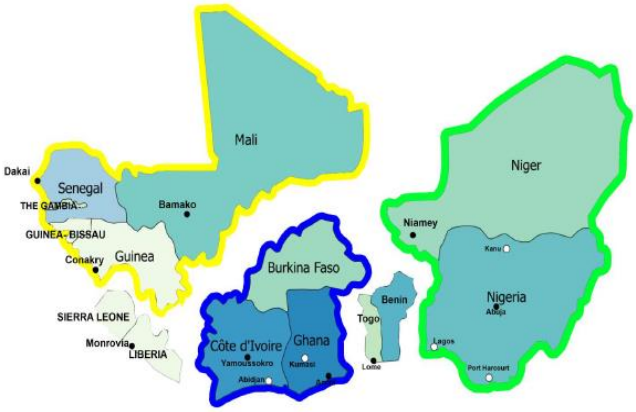
The concept of "bulk procurement" is understood as bundling of several solar PV projects in a single PPA, predictably reducing transaction costs for project developers as well as for off takers negotiating the contracts. Previous precedents of bulk procurement schemes, if available, will be taken into account. The focus will be on bundling approaches at the national level first. However, the feasibility of bulk procurement schemes that transcend national boundaries will be explored in legal and operational terms with guidance from West African Power Pool (WAPP) and the ECOWAS Regional Electricity Regulatory Authority (ERERA).

Transnational bulk procurement schemes in the ECOWAS region would be limited to the extension of solar PV clusters, defined as small groups of ECOWAS Member States with three complimentary resources: i) Hydro to provide energy storage or large-scale batteries, ii) low cost solar generation potential and, iii) Transmission interconnection between the countries of the cluster. Three Solar PV clusters have been defined as part of the Solar Corridor roadmap under the WACEC initiative, as presented in Table 2 and illustrated in Figure 1.

Table 2- Solar PV collaboration clusters in ECOWAS

	High Irradiance Solar	Large Hydro for Storage	Interconnection
Cluster N-N *(Niger & Nigeria)*	Niger	Nigeria	Exists
Cluster B-C-G *(Burkina, Cote d'Ivoire & Ghana)*	Burkina Faso *(50MW Solar Project being promoted by WAPP & WB)*	Ghana & Cote d'Ivoire	Exists
Cluster G-M-S *(Guinea, Mali & Senegal)*	Mali & Senegal *(Solar projects currently over-committed in Senegal)*	Guinea	Upcoming (OMVG)

Figure 1- Clusters for collaboration within the Solar Corridor initiative



The risks of a bulk procurement scheme transcending national boundaries will also be assessed. Responsibilities on designing and honouring PPAs, guaranteed access to electricity markets, or risk evaluation at a regional, rather than a national level are some of the new aspects that electric utilities, regulators, governments and financiers will have to learn to deal with.

The consultant will also identify challenges related to the legal and operational feasibility of a wholesale procurement system at the national and regional levels as well as design relevant mitigation measures.

3.5. Design of a Bulk Procurement Scheme and draft national Pilot Tender Documents

Drawing from the results of previous assessments, the elements of a bulk procurement scheme will be designed.

The objectives of this stage is to reflect on various design choices, including but not limited to type of guarantee to be provided, kind of auction, new elements to be considered for the signature of PPAs; and amendments to other project agreements when projects are procured in bulk.

The design should also include requirements for that allow for bundling projects; nationally and regionally including off takers risk allocation.

Finally, the design options should be provided with a simulated risk of success if possible and an identification of the major weak points or risk factors with highest possible impact, not only on the success of the tendering process but also the implementation of bulk procured projects in the long term.

3.6. Review and validation of the scheme by WAPP, ERERA, ECOWAS Member States and other partners

The rationale for a bulk procurement scheme and the key elements of its design will be discussed with WAPP, ERERA and representatives of ECOWAS Member States, as well as with other key partners like IRENA and USAID, and stakeholders during a meeting to be organised by ECREEE. The actual date and location of the validation meeting is to be determined upon finalization of the assignment.

After the validation of the scheme, a national pilot will be launched based on a project identification process as defined the solar corridor strategy.

4. Proposed Timeline of assessment

Deliverable	Delivery date
Inception report (task 1)	24th January 2020
Mid-line report on an inventory of solar PV procurement methods in ECOWAS, and pertinence of different factors including scale to achieve competitiveness (results of tasks 2 and 3)	14th February 2020
Report on the legal and operational feasibility of a bulk procurement scheme and proposed design of such scheme (results of tasks 4 and 5)	28th March2020
Presentation to, and review and validation of results by ECREEE's partners	4th May 2020
Draft national pilot tender documents	22nd May 2020
Final report containing all activities, after review and validation by ECREEE and partners	29th May 2020

5. Language of work

All the deliverables will be presented in English except the final report that will be submitted both in English and French. Consultants need to be able to be fluent in English and French for the assignment.

6. Consultant's profile

Project Lead

- Advanced University Degree in Economics, Engineering or Law;
- At least 10 years of experience providing technical, economic and/or legal advisory to Solar PV and other renewable energy project developers and financial organisation leading to financial closure of projects;
- Project management experience;
- Experience in the design and negotiation of PPA;
- At least 10 years of experience within and outside Africa, with special interest in West Africa;
- Good exposure to international competitive tendering (bidding) procurement practices relating to the sector;
- Good knowledge of related activities being implemented or planned by other relevant actors (WAPP, ERERA, IRENA, USAID, World Bank, AFDB, ABREC etc.);
- Fluency in English and French.

Supporting Renewable Energy Expert/Consultants

- Advanced University Degree in Economics, Engineering or Law;
- At least 5 years of experience providing technical, economic and/or legal analysis to Solar PV and other renewable energy project developers and financial organisation leading to financial closure of RE projects;
- At least 5 years of experience within and outside Africa, with special interest in West Africa;
- Good exposure to international competitive tendering(bidding) procurement practices relating to the sector;
- Fluency in English and French.

7. Estimated level of input

The estimated level of work is about 4. 5 months divided between the Project lead and the Supporting Renewable Energy Expert consultants.

In addition the team will count on the legal support from USAID for the preparation of the legal feasibility analysis of a bulk procurement scheme as per task 4.

8. Form of proposals

Technical Part:

- Description of the expert or expert team
- Detailed CV (annexes)
- List of references of assignments with similar scope and focus (annexes)
- Description of approach, methodology, process management and reporting
- Implementation plan including expert diagram indicating the working days of the offered experts

Financial Part:

- Personnel Costs: budget table according to the expert diagram (showing the individual daily fees of the experts in USD)
- Other costs (travel cost to selected Member States)

9. Evaluation of proposals

The best offer will be determined as following:

1.) 80% Quality of technical part

- Professional experience of team members
- Profile of team members

Quality of technical document (approach, methodology, suggested process and reporting framework)

2.) 20% financial part

Including personnel and other costs

10. Means of Submission and Administrative Information

Interested candidates should submit proposals as detailed in item 8 in English language and electronically by 30th December 2019 **23:00 UTC-.**

Contact point at ECREEE: Adeola Adebiyi (Miss), Programme Officer – USAID at aadebiyi@ecreee.org in copy of Gui Guei Guillaume Fulbert KOUHIE (Mr), Program Officer -Renewable Energy – ECREEE at gkouhie@ecreee.org and Baboucarr Njie (Mr), Programme Manager – USAID at bnjie@ecreee.org