

Terms of Reference

Job Title: Development of the ECOWAS Green Hydrogen Policy

Languages Required: English and French

Starting Date: January 25, 2022

(date when the selected candidate is expected to start)

Expected Duration of Assignment: Three (3) months

Duty Station: Home based (with possible missions in selected ECOWAS Countries)

I. Background:

1.1. Overview of Green Hydrogen in the ECOWAS REGION

The exploitation of Green Hydrogen as an energy resource in the West African region is still in its embryonic stage. Africa has a growing population of nearly 1.3 billion, which has been increasing at an average annual rate of 2.5% for the last 10 years. The growing population directly implies growing demand for energy and expanded infrastructure to match the growth. The overall sustainable development of Africa and indeed the global effort to reduce climate degradation will stem from a holistic energy system driven by renewable energy. This challenge of reaching 100% renewable based energy systems will require joint effort and partnership across borders in order to find feasible climate-friendly solutions. In a new initiative, Germany is collaborating with WASCAL and African countries to explore the utilization of Green Hydrogen and its derivatives as an energy option in a joint effort to decarbonize West Africa economy. (IEA).

H2ATLAS-AFRICA project is the first phase of a joint initiative of the German Federal Ministry of Education and Research (BMBF) and African partners in the Sub-Saharan region (SADC and ECOWAS countries) to explore the potentials of Green Hydrogen production from the enormous renewable energy sources within the sub-regions. The developed atlas of green hydrogen will support sustainable and economic development through a viable hydrogen economy with a high potential to make Africa a user and exporter of Green Hydrogen, hence gaining even more relevance in international energy markets. (WASCAL).

1.2. Establishment of ECREEE as a regional response

The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) was established in response to the recommendation of the ECOWAS/UEMOA White Paper on access to energy services in rural and peri-urban areas issued in 2006. This recommendation was given a further boost by the Ouagadougou Declaration, where the ECOWAS Conference

on Peace and Security on the 12th of November 2007, articulated the need to establish the center. At the same conference, the Austrian Minister for European and International Affairs and UNIDO pledged support for the creation and take-off of the center.

In November 2008, the 61st Session of ECOWAS Council of Ministers adopted Regulation C/REG.23/11/08 and gave the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) a legal basis. In 2010, the secretariat of the Centre was established during a six-month preparatory phase in Praia, Cape Verde, with the support of the ECOWAS Commission and the Austrian and Spanish Governments, as well as technical assistance from United Nations Industrial Development Organization (UNIDO).

The overall objective of ECREEE is to contribute to the sustainable economic, social and environmental development of West Africa by improving access to modern, reliable and affordable energy services, energy security and reduction of energy related GHG emissions and climate change impacts on the energy system. The specific objective of ECREEE is also to create favorable framework conditions for regional RE&EE markets by supporting activities directed to mitigate existing technology financial, economic, business, legal, policy, institutional, knowledge and capacity related barriers.

1.3. ECREEE and WASCAL/BMBF partnership on Green Hydrogen development in the ECOWAS region.

WASCAL is an international organization bringing together 10 West African countries and Germany officially created in 2012. Its main mission is to provide information and relevant science based knowledge at the local, national, and regional levels to its West African member countries to cope with the adverse impacts of climate change and currency integrated mid and long-term options to build up resilient and productive socio-ecological landscapes.

WASCAL is funded by the German Government through the Federal Ministry of Education and Research (BMBF) and operates through two pillars supported by its capacity building department based in Accra, Ghana and its Competence Center based in Ouagadougou, Burkina Faso.

WASCAL has developed over many years expertise in capacity building, training, policy support, research and provision of climate services in various themes relating to climate change: land use and land degradation, risk and vulnerability to climate extremes, rural-urban and cross-border migration, sustainable agriculture and climate smart landscapes. Aware of the causal links between climate change and energy, WASCAL has recently integrated the new theme of renewable energy, including green hydrogen, into its portfolio to promote sustainable access to energy services in the region and ensure its socio-economic development. In this regard, it has established a collaboration with ECREEE to develop a regional Atlas of green hydrogen and unroll a roadmap for the adoption of a regional policy of green hydrogen.

1.4. Requirement for elaboration of a regional Green Hydrogen policy and regulatory frameworks

Hydrogen as fuel for the future has gained global interest in recent years. It is mainly extracted from its compound, commonly water using various processes with either fossil or renewable energy source. Till date, hydrogen is mostly produced from the so-called Steam Methane-Reforming (SMR) process mainly driven by fossil fuel such as coal, oil and natural gas hence resulting in heavy carbon emission and the attendant climate impact. Using renewable energy sources such as wind, solar, geothermal or hydropower to split water through electrolysis produces “clean and green” hydrogen (IEA).

It is evident that Green Hydrogen, like other renewable energy and energy efficiency services can contribute significantly to increase to SE4ALL in the region. However, markets for Green Hydrogen technologies and services remain largely underdeveloped in West Africa due to some key barriers already identified for the development and expanded use of this resource and include Policy, legal and regulatory frameworks. This would enable the Market environment for the penetration of Green Hydrogen technologies and services.

To successfully implement Green Hydrogen-enabled technologies and incorporate this within the energy mix of any country, enabling conditions in terms of policies, legal and regulatory frameworks are essential. Government policies are indispensable in the creation of the enabling environment for mobilizing resources and encouraging both local and foreign private sector investment in the Green Hydrogen sector.

Currently, no ECOWAS member state had started defining national policies and strategies to promote the dissemination of Green Hydrogen technologies and services and consequently, the following challenges have persisted:

- The technology is new, and concepts are in their embryotic stage, except the H2Atlas project being developed by WASCAL and Forschungszentrum Julich.
- Gaps sometimes exist and/or there are inadequate policy instruments in place to achieve the overall policy objectives.
- Since Green Hydrogen is produced from water and has been shown to require this in large volumes for large scale production, the water-land-energy nexus should be given strong consideration to avoid use conflict. Existing land and water resource utilization and national water and land use policies should be revisited.
- Energy policies often focus on matters concerning commercial energy supply, especially grid based electricity and oil products. Many countries currently do not have existing policies, regulations and laws on Green hydrogen technologies and services, it is important that such policies are developed.

The lack of a Green Hydrogen policy, legal and regulatory frameworks therefore is a major barrier for the deployment of this important resource in the ECOWAS region. This has therefore largely resulted in a situation that is burdened with uncertainties and thereby limiting potential investment. It is therefore vital to establish and operationalize comprehensive and

coherent policy, legal and regulatory frameworks that would create a level playing field for Green Hydrogen technologies and services, open new avenues and opportunities, and stimulate greater private sector involvement in these sectors at country and regional levels.

II. Description of Responsibilities:

2.1. Overall objective of the assignment

The objective of the Study is to:

- i. Develop a Regional Green hydrogen Policy for the ECOWAS Region. The Study should also develop guidelines for national policies and regulations; and
- ii. Elaborate a full strategy document and Implementation plan based on Green hydrogen. This should consider possible environmental impact arising from the production and utilization of green hydrogen and its derivatives and suggest adaptation measures to accompany this.

The Policy document will be the first step towards aligning the regional and national government's Policies, legislative procedures and guidelines in a systematic approach for fostering greater public and private participation. It is expected that more sustainable patterns of energy production/generation and consumption would be established for the benefit of the ECOWAS population, especially the rural people in the energy supply and the regional economic and industrial growth.

2.2. Specific objectives of the assignment

The Study focuses on creating the enabling environment for the penetration of green hydrogen markets in the ECOWAS region by removing the barriers related to policy, legal and regulatory frameworks. It would also identify and set targets at regional level harmonized with national targets. It is anticipated that the development of green hydrogen policies would increase the penetration of green hydrogen intake by also promoting incentive schemes for the private sector both for sustainable production of green hydrogen and its derivatives as well as the local utilization of same, thereby increase the overall impact of the policy implementation for:

- i. diversification of energy services to the population;
- ii. increase and improve sustainable energy access and security with the provision of energy services from green hydrogen in the urban and rural areas;
- iii. technology acquisition, with establishment of production plants within the Region for fuels assembly and manufacture of related systems components;
- iv. establishing green hydrogen businesses – for design, production, construction, installation, operation, maintenance, increased socio-economic activity in production and use of Green hydrogen fuels and devices/equipment, and hence create jobs in the new business sectors and increase income levels;
- v. reduction of the national energy import bills and savings on balance of payment;
- vi. increased food production that enhances energy access with due consideration to the GBEP and other sustainability Indicator (SI) in all aspects of the production and consumption cycles, with particular emphasis for the rural population and women;
- vii. Production of Green hydrogen in the ECOWAS region for export purposes.

III. Functions / expected key results

3.1. Expected outcomes

- Developed Regional Green Hydrogen Policy for the ECOWAS region including targets for green hydrogen penetration up to 2030 and 2050;
- Elaborated full Strategy document and Implementation plan for the ECOWAS region based on the adopted Strategy Framework;

3.2. Expected outputs

- A regional policy and regulatory framework for green hydrogen is proposed with targets for penetration
- A full detailed Strategy document is elaborated

3.3. Deliverables and Reporting

- 3.3.1. List of documents and information needed to analyze the current situation in the ECOWAS region and member states in terms of green hydrogen policies and regulatory frameworks
- 3.3.2. Document with the analysis of the reviewed information of the current situation in policies and regulatory frameworks, as stated in activities 3.3.1
- 3.3.3. First draft documents including Output 3.3.1; and 3.3.2;
- 3.3.4. Workshop report
- 3.3.5. Second draft document including Outputs 3.3.1; 3.3.2; and 3.3.3;
- 3.3.6. Final documents including Outputs 3.3.1; 3.3.2; 3.3.3; and 3.3.4;
- 3.3.7. The consultant will print and bind 10 copies each of the final policy document in the three ECOWAS official languages (English, French and Portuguese) to ECREEE and WASCAL.
- 3.3.8. The consultant will also produce 10 copies of the final report in the three languages on Flash Drive to ECREEE and WASCAL.

3.4. Activities

Output 3.4.1: A regional policy and regulatory framework for green hydrogen is proposed

- a. Review the energy situation, vis –a-vis all the green hydrogen components of the supply and demand in the member states. These include available renewable energy resources (solar, wind, hydro as well as water resource availability). Gathering of information and data through internet and contacts in the countries, selected meetings in each country, at the ECOWAS Commission, WASCAL and all relevant institution and partner of the ECOWAS region;
- b. Review of national policies and strategies of the energy sectors in each ECOWAS member state to identify areas that need updating and further development; (this information will be collected with the support of ECREEE upon the consultant requirement on the kind of data needed)
- c. Review existing policies on land administration and water use and proffer recommendation for co-use benefits for sustainable green hydrogen without room for conflict of use.
- d. Review the existing incentive schemes for promoting renewable energy resources / Green hydrogen including Custom duties/tax on green hydrogen equipment and systems and

- how to provide the necessary incentives through duty/tax exemptions and other mechanisms;
- e. Propose guidelines for determining feed in tariffs for renewable energy generated electricity, each ECOWAS member state. Propose a strategy on how existing or planned energy trading arrangements could best incorporate green hydrogen trade and integration.
 - f. Propose a regional policy and regulatory framework for promoting green hydrogen for adoption. Policies in the Green hydrogen sectors should consider:
 - i. Developing the range of laws and regulations that create a level playing field for various fuels, and renewable energy resources;
 - ii. Adequate consideration should be given to using use of green hydrogen resources to satisfy national and regional demands and also economic opportunities to export.
 - iii. Particular attention to energy infrastructure plans and projects and its adequacy with the development of green hydrogen at regional and national levels
 - iv. Special consideration to rural communities, gender and people at disadvantage for local production and consumption with special incentives;
 - v. Standards for tradeable renewable liquid, and labels for renewable fuels;
 - vi. Grid-connection and off-grid generation of large and small scale green hydrogen electricity generation,
 - vii. Green hydrogen sources for off-grid and mini-grid systems, including hybrid systems,
 - viii. Green hydrogen as an opportunity of a decarbonized transport sector of the region
 - g. Drafting the Green hydrogen Policy, legal and Regulatory Framework, full Strategy document and Implementation plan documents. In drafting these documents, the consultant is advised to include but not limited to:
 - Broad policy goals with proposal for regional and national targets of penetration for the entire sector;
 - Comprehensive action plan for the implementation of the Regional Green hydrogen Policy/Strategy containing specific recommendations to ECOWAS countries and regional institutions for increasing the green hydrogen penetration rates:
 - Identify opportunities for energy production across the entire socio-economic spectrum of the Region using green hydrogen;
 - Provide guidance on incentive schemes such as duty concessions, grants, feed-in tariffs, mandatory codes, Renewable portfolio standards (RPS) or renewable obligations, or quotas and fiscal measures to promote and encourage green hydrogen production, clean and efficient cooking and heating solutions, energy efficiency and conservation in production and consumption of green hydrogen resources and equipment;
 - Identify the various available supply options and consider what contribution each could make in the move towards a diversified energy supply and improved energy security.
 - Articulate possible environment impact assessment of green hydrogen.

Output 3.4.2: Elaborate a full Regional Green hydrogen Strategy document based on an ECOWAS Green hydrogen Strategy Framework.

- a. Review the existing situation in the Region and compile available information and data for referencing;

- b. Elaboration of a log frame for each component and activity to providing compelling justifications for the action and the expected outputs;
- c. Propose regional programmes and projects of the components of the Strategy and institutional arrangement for implementation at Regional and national levels.
- d. Propose regional approaches to implement the components of the Strategy and budgets with timeframe.

3.5. *Proposed chronogram and methodology*

The development of the Policy document is expected to take about three months, starting in January 2022. A tentative chronogram and logic of intervention is shown below.

Once elaborated the drafts of the outputs described above the process of reviewing and finalization of the Policy Document will be as follows:

- Submit the first draft document to ECREEE for review with its partners (WASCAL and BMBF) as well as member states for comments.
- Organize the programme of the first regional consultative workshop with key stakeholders from the member states and international experts for discussing the first draft. Improve the document with comments from the workshop; (logistics of the workshop will be organized by ECREEE)
- Submit the second draft document to ECREEE for review with its partners (WASCAL / BMBF) and its member states for comments.
- Review the comments and finalize the second draft green hydrogen Policy and Strategy document after the second regional consultations. During the consultative processes, the consultant should provide electronic copies (in English, French and Portuguese); and also, maybe available to answer questions or provide clarifications where needed.
- Submit the Final draft of the green hydrogen Policy/Strategy (10 copies) to ECREEE and WASCAL for approval of the ECOWAS Energy Ministers at a regional consultative workshop.
- Assist ECREEE if needed in correcting the policy and strategy documents after the approval workshop of ECOWAS energy ministers

3.6. *Implementation Schedules*

Activity	J	F	M	A
Inception meeting and final inception report				
Gathering information of existing policies in the region & elaboration of the policy document				
Elaboration of first draft of policy framework & Strategy document				
Regional workshop to validate the draft of the policy framework & Strategy Document				

Elaboration of second draft of policy framework				
Submission of second drafts for comments				
Elaboration of final version				

IV. Competencies:

The Consultant or consulting firm is expected to have the following profile:

Lead consultant

4.1. *General skills:*

- At least 10 years of experience in energy policy and strategy
- engagement in strategic planning activities in the energy sector;
- Consulting experience in the public and private sectors especially in development of national/regional policies, strategies, regulations and relevant studies in energy sector
- A good knowledge of ECOWAS region and country members' energy and trade sector;
- Having a good relationship network across the ECOWAS region will be well appreciated
- A good knowledge and/or experience of hydrogen technologies and various applications,
- Ability to undertake research and lead strategic dialogue on key development issues;
- Strong problem solving, research, analytical, writing and people leadership skills;

4.2. *Functional skills:*

Development and Leadership:

- Ability to coordinate inter-disciplinary teams and manage complex assignments in a multi-cultural setting;
- Ability to moderate high level meetings.
- Excellent communication skills;

4.3. *Qualification*

Education:

- Key staff should have advanced university degree (at least a bac+5 Master/Engineering or PhD) in energy, economics, science, law or any related field;
- Other members of the team will have similar background and with professional qualifications and experience to complement the team leader. Data acquisition and analysis skills will be important. **Moreover, the consultant or the consulting firm should include the following personnel:**
 - a) **Energy sector expert (policy, infrastructure and governance)**
 - b) **Finance expert (experience in economy and finance in the energy sector)**
 - c) **Strategic planning expert**

Experience:

- High level professional qualification in engineering, political science, economics, business or other relevant subject,
- In-depth knowledge and experience in renewable energy, policy-making, and legal and regulatory aspects,
- An excellent understanding of the global energy economics, particularly Green hydrogen, business and political landscape and the unique developmental challenges facing Africa in general and the ECOWAS region in particular.

In addition, the consultant is expected to have in-depth knowledge and experience in energy, policy-making, strategic planning and legal and regulatory aspects.

Understanding of Green hydrogen or previous work related to it is an advantage.

Language knowledge required: English, French and Portuguese

The consultants must have a capacity to work proficiently in either English or French. Working knowledge of both languages and in Portuguese will be an added advantage.

IV. Application deadline and evaluation criteria

In order to be eligible for consideration, the consultant should have work experience in the ECOWAS region. The Consultant's team must be fluent in both English and French. Fluency in Portuguese is also desired.

Proposals will be evaluated based upon the following criteria:

1. **Technical Approach:** The technical approach described in the proposals will be evaluated on:
 - a. Demonstrated understanding of the overall project context;
 - b. Detailed work plan and approach clearly defining the target objectives and the strategy to achieve the objectives as outlined in the Description of the Assignment.
2. **Management Structure and Staff Qualification:** The proposed management structure and staff will be evaluated based on:
 - a. Professional qualifications and the extent to which the requisite expertise and experience of the key personnel will directly contribute to the completion of the tasks
 - b. Extent of the collaboration proposed with qualified contractors local to the ECOWAS region.
3. **Past Performance and Corporate Experience:** The experience and capacities of the contractor will be evaluated based on:
 - a. Past performance, familiarity, and experience in understanding policies and programs related to green hydrogen Strategies, policies, legal and regulatory issues in the member states;
 - b. Extent of local expertise including experience, qualifications, and track record in implementation of similar programs in Africa and the region.
4. **Total Cost:** While the overall Technical Evaluation is the key factor in reviewing the proposal, the financial proposal must be competitive and will be evaluated for feasibility, completeness, and practicality. A detailed estimate of travel and local expenses is required with the financial submission.

Proposals will be evaluated using a Quality and cost-based selection (QCBS) method, with weights of 80 percent towards project proposal quality and team organization as well as experience, and 20 percent towards proposed costs. The following table presents the evaluation criteria:

Criteria	Points
Experience of the firm	20
Qualification and experience of the experts: Lead expert (10), Energy expert (5), Finance and strategic planning experts (5)	20
Understanding of the terms of reference	10
Methodology and planning in compliance with the ToR	30
TOTAL	80

The offer comprising of technical and financial proposals, in two separate files, should be sent ONLY to: green-hydrogen@ecreee.org and tender@wascal.org clearly indicating in the subject: "DEVELOPMENT OF THE ECOWAS GREEN HYDROGEN POLICY". **The deadline for submission of proposals is the 31th December 2021, 12.00 noon GMT time.**