

TECHNICAL ASSISTANCE TO ECOWAS

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FED/2018/396-247

for the implementation of the 11th EDF Energy Governance Programme in West Africa (AGoSE-AO)

REGIONAL ELECTRICITY CODE REPORT

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Explanatory memorandum (Electricity, engine of growth and factor of economic and social development)

I. Background and Justification

The electricity sector in the ECOWAS region is faced with numerous structural challenges in all its components, including a generation deficit, high costs for electricity utilities, uncontrolled costs for investment in renewable energy, and an inefficient fossil fuel supply system, despite the significant progress made in the implementation of the Community.

Despite an enormous energy potential, nearly 60% of the population does not have access to electricity. The state of the electricity sector is as follows:

- Total installed capacity in xx;
- Deficit at peak of xx MW in xx;
- Coverage rate (xx% in xx);
- National electrification rate (xx% in xx);
- Cost per kWh (between xx and xx F CFA/kWh);
- etc.

It is in recognition of this reality that the Commission has taken the firm resolution to give a new direction to the energy policy. The new energy policy aims to:

- ✓ Harmonize the legal, institutional and regulatory framework to promote private investment, particularly in energy efficiency and renewable energy,
- ✓ develop the regional electricity market in order to promote energy exchanges between Member States, and
- ✓ Ensure universal access to modern energy services under the best conditions of quality and sustainability and at the lowest cost, including through the development of electrification in rural and peri-urban areas.

The stated objectives for 2050 are:

- to achieve an average electrical energy coverage rate of xx% for the entire region;
- to increase the use of energy from renewable sources to x%.

To achieve these objectives, the West African States have chosen to pool their resources through the creation of an open and competitive regional electricity market, resulting from the interconnection and interoperability of the Transmission and Distribution Networks in order to improve the access of populations to modern, sustainable, reliable and affordable electricity.

The willingness of ECOWAS States to harmonize their energy policies was already enshrined in the Revised Treaty which, in Article 28, provides that Member States agree to coordinate and harmonize their policies and programs in the energy sector. To this end, Member States have undertaken, respectively, to:

- To effectively develop the region's energy resources;
- Establish appropriate cooperation mechanisms to ensure a regular supply of hydrocarbons;
- Promote the development of new and renewable energies within the framework of the policy of diversification of energy sources, in particular solar energy, wind energy, small hydroelectricity, biomass and geothermal energy, which have been identified as a family of renewable energy sources in accordance with the policy on this subject, namely the PERC drawn up by the ECREEE;
- Harmonize their national energy development plans, in particular by seeking the interconnection of electricity distribution networks;
- - Design a common energy policy, particularly in the areas of research, operation, production and distribution;
- - create a consultation and coordination mechanism to jointly resolve the problems of energy development within the Community, particularly those relating to energy transport, the lack of qualified staff and technicians and the shortage of financial resources for the implementation of their energy projects.

In addition, through the Energy Protocol, Member States have established a number of fundamental principles that address the need to harmonize institutional frameworks around the following issues :

- sovereignty over natural resources that can be transformed into energy;
- legal ownership of facilities;
- legal security;
- the treatment to be accorded to national and foreign investors, in this case the protection of private investors from member countries
- the need for Member States to have a uniform regulatory reference in the different national contexts;
- the definition of common principles or rules for the conduct of generation, transmission and distribution activities.

II. Development of the legal and regulatory framework

For the practical implementation of these major principles, the Specialized Agencies, in execution of their dedicated competences, have elaborated a certain number of normative rules, which were scattered at the beginning, but in progressive development, notably:

- **Regulations C/REG.27/12/07 of 15/12/2007 and C/REG.24/11/08 of 29/11/2008** on the composition, organization, powers, duties and operation of the ECOWAS Regional Electricity Regulatory Authority (ERERA);
- **Regulation C/REG.23/11/08** of the ECOWAS Council of Ministers, the legal basis of the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE);
- **Decision A/DEC.5/12/99** of the 22nd Summit of the Assembly of Heads of State and Government on the Convention on the Organization and Functioning of the WAPP;
- **Decision A/DEC.17/01/03** on the ECOWAS Energy Protocol;
- **Decision A/DEC.6/01/05** on the development of a regional regulatory framework for the electricity sector within ECOWAS as a prelude to the establishment of a regional regulatory body;
- **Decision A/DEC.7/01/05** on the revised ECOWAS Master Plan for Power Generation and Transmission;
- **Decision A/DEC.18/01/06** adopting the Convention on the organization and functioning of the WAPP;
- **Decision A/DEC.20/01/06** on the promotion and development of electric power generation and transmission infrastructure as well as the coordination of electric power exchanges between ECOWAS Member States;
- **Directive C/DIR/1/06/13** which defines the general principles governing the ECOWAS regional electricity market;
- **Directive C/DIR/2/12/18** on securing cross-border exchanges in the Regional Electricity Market;
- **Decisions A DEC.3/5/81 and A DEC.3/5/82** on ECOWAS energy policy;
- **Decision N°010/ERERA/17** approving the Regional Electricity Market Procedures for the West African Power Pool; Participation in the Regional Market and Registration of Market Participants.

These decisions and guidelines for the development of the regional electricity market must be put into effect in order to allow, in addition, the mobilization of huge private capital that the sector requires.

III. Process for Developing the Draft Code

All the above texts, drawn up in accordance with the nomenclature of the ECOWAS Acts, constitute a legal order distinct from national legal orders. It maintains a relationship with the latter marked by three principles: autonomy, primacy and direct effect.

In this, these texts are directly integrated into the legal order of the States and are directly enforceable for the most part; even though the States are experiencing a very unbalanced electrical and industrial environment that inclines them to look for ways and means to minimize the differences between the objectives of economic policies through the leverage of electricity and the requirements linked to the opening of the market.

In view of this abundance of texts or standards, the ECOWAS organs have expressed the need to have an Electricity Code. It is in this perspective that the ECOWAS authorities have undertaken to establish the said ECOWAS Electricity Code on the recommendations of the national experts of the Member States issued at the end of the meeting held in Bissau on 1st and 2nd August 2019. The discussions that took place clearly highlighted the need to:

- 1) Make the electricity sector more attractive and secure for private investors/developers;
- 2) Include a normative mechanism for the exploitation of renewable energy sources, so that the region can be truly involved in the development of policies formulated by the international community in this area and benefit from related initiatives;
- 3) To provide users with a better quality of service, at an affordable cost and respecting the principle of continuity, non-discrimination and inclusion in the supply of electricity;
- 4) To contribute to the improvement of the governance of the electricity sector at the regional level, based on the principles of transparency, accountability, solvency and inclusion.

Despite the disparities noted in the different legal systems dominated by the dual conception of the French-speaking world and the Common Law in the production and elaboration of law, this Code, conceived as a result of the above-mentioned texts, should be presented in the form of a corpus bringing together in a single medium all the applicable regulations.

Ultimately, it is a process of codification and standardization of norms, common and specific general principles, procedures governing the electricity sector that would be common to ECOWAS Member States and harmonization of national legislation. This corpus is completed by the requirements of the new right to build as it is deduced from the new concerns such as public-private partnerships, the problems of domaniality and easements which have not yet been the subject of specific regulation by the ECOWAS bodies and the minimum requirements in the Energy Purchase Contracts.

The interest of the codification is firstly the creation of a regulatory framework to harmonize regulations and promote good governance, with a view to creating a climate conducive to investment, with the establishment of transparent and incentive-based regulatory frameworks and structure.

IV. Presentation of the draft Code

The present code is therefore structured around two books:

Book 1 deals with (i) the General Principles; (ii) the Concepts, Definitions and Operating Standards of the Public Service; (iii) the Prerogatives of Easements; (iv) the rules specific to generation, transmission and distribution activities as well as the Common Rules for the opening of the regional market; (v) the rules and procedures relating to the development and implementation of Public-Private Partnerships (PPP) as well as the rules relating to concession contracts, power purchase agreements, etc.

It is subdivided into three (3) titles as follows:

Title I: it deals with general provisions. It includes five (05) chapters and 42 articles (1 to 42).

Title II: it sets out the guiding principles and orientations. It includes two (02) chapters and 07 articles (43 to 49).

Title III: deals with the mechanisms of good governance. It includes two (02) chapters and 10 articles (50 to 59).

Book 2 deals with the provisions and technical rules relating to electricity. It is subdivided into four (03) titles as follows:

Title I: It deals with the technical rules relating to the electricity industry. It includes two (02) chapters and seventeen (17) articles (60 to 76).

Title II: deals with common provisions and directives relating to rural electrification, renewable energy and energy efficiency. It includes three (03) chapters and sixteen (16) articles (77 to 92).

Title III: It deals with technical standards and norms. It includes two (02) chapters and twelve (12) articles (93 to 104).

Finally, Title 4 on the final provisions:

Title IV: deals with final provisions. It includes three (03) articles (105 to 107).

Such is the economy of the project which is conceived according to a numerical and dynamic approach intended to incorporate as one goes along the changes in progress or to come.

Abbreviations and Acronyms

ACEC	African Clean Energy Corridor
AECOWP	Association of ECOWAS Women Parliamentarians
AfDB	African Development Bank
ANSI	American National Standards Institute
ASTM	American Society for Testing and Material
BIDC	ECOWAS Bank for Investment and Development
BOT	Build Operate Transfer
BSI	British Standards Institute
CAPP	Central African Power Pool
CDPM	Central Directorate of Public Markets
CLCG	Côte d’Ivoire, Liberia, Sierra Leone, Guinea
EAC	East African Communities
EAL	Emphyteutic Administrative Lease
EAPP	East African Power Pool
ECGD	ECOWAS Centre for Gender Development
ECOWAS	Economic Community of West African States
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
EPC	Energy Performance Contract

EPEC	European PPP Expertise Center
EPEE	ECOWAS policy on energy efficiency
EREF	ECOWAS Renewable Energy Facility
EREI	ECOWAS Renewable Energy Investment Initiative
EREP	ECOWAS Renewable Energy Policy
ERERA	ECOWAS Regional Electricity Regulatory Authority
ERI	Energy Rating Index
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
EU	European Union
EYSDC	ECOWAS Youth and Sports Development Centre
FANOR	French Association for Normalization
GIS	German Institute for Standardization
CIC	Information and Coordination Centre (CIC)
IEA	International Energy Agency
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
IOS	International Organization for Standardization
IPP/PIE	Independent Power Producers

IRENA	International Renewable Energy Agency
LAEM	Latin American energy market
MEMC	Manantali Energy Management Company
MITS	Manantali Interconnected Transmission System
NEMA	National Electric Manufacturers Association
NGO	Non-Governmental Organisation
NSCPC	National Support Committee for Partnership Contracts
OMGV	Gambia River Development Organization
OMVS	Organisation for the Development of the Senegal River
PC	Project Company
PPA	Power Purchase Agreements
PPA	Power Purchase Agreement
PPDU	ECOWAS Project Preparation and Development Unit
PPI	Private participation in infrastructure
PPP	Public-Private Partnership
PPPI	Institutional public-private partnerships
PSNWECOR	Peace and Security Network for Women in the ECOWAS Region
REA	Rural Electrification Agencies
REC	Regional Economic Community

REC	Regional Electricity Code
REF	Rural Electrification Fund
RE	Renewable energy
RISE	Readiness for Investment in Sustainable Energy
SADC/CDA	Southern African Development Community
SAPP	Southern African Power Pool
SDG/ODD	Sustainable Development Goal
SPC	WAPP Strategic Planning Committee
SSA	Sub-Saharan Africa
SWOT	Strengths - Weaknesses - Opportunities – Threats
ToR	Terms of Reference
TSO	Transmission System Operator
WAEMU	West African Economic and Monetary Union
WAGP	West African Gas Pipeline
WAGPA	West Africa Gas Pipeline Authority
WANYWL	West African Network of Young Women Leaders
WAPP	West African Power Pool
WPACo	West African Gas Pipeline Company

Preamble

In view of the Revised Treaty concerning the coordination and harmonization of Member States' energy policies;

In view of Decision A/DEC.3/5/82 on the ECOWAS Energy Policy;

In view of Decision A/DEC.5/12/99 on the establishment of a West African Power Pool (WAPP);

In view of Decision A/DEC.2/12/03 on the European Initiative on Energy for Poverty Eradication and Sustainable Development, revising the Regional PRSP so that energy programs are integrated into EDF-eligible programs and reviewing the National PRSPs to integrate the energy component into priority EDF-eligible programs;

In view of Protocol A/P4/1/03 on Energy of the Economic Community of West African States (ECOWAS) adopted following the Treaty and ratified on 31 January 2003 in Dakar by the fifteen (15) ECOWAS Member States;

In view of Decision A/DEC.3/12/03 regarding the Regional Rural Electrification Program;

In view of Decision A/Dec.24/01/06 on the adoption of an ECOWAS/UEMOA Policy on Access to Energy Services for Rural and Peri-urban Populations for Poverty Reduction and Achievement of the MDGs;

ECOWAS Decision A/DEC.6/01/05 of 19 January 2005 on the development of a regional regulatory framework for the electricity sector within ECOWAS;

ECOWAS Decision A/DEC.18/01/06 of 12/01/2006 adopting the WAPP Convention binding the signatory utilities and granting it the status of a specialized institution of ECOWAS (Decision A/DEC.20/01/06);

The Additional Act A/SA.2/01/08 of January 18, 2008, established the ECOWAS Regional Electricity Regulatory Authority (ERERA);

Regulations C/REG.27/12/07 of 15/12/2007 and C/REG.24/11/08 of 29/11/2008 on the composition, organization, powers, duties and operation of the ECOWAS Regional Electricity Regulatory Authority (ERERA);

Directive C/DIR/1/06/13 of June 21, 2013, on the organization of the regional electricity market, aims to define the general principles governing the Regional Electricity Market under the ECOWAS Energy Protocol.

ECOWAS Council of Ministers Regulation C/REG.23/11/08, the legal basis for the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREE).

Unique Title: Preliminary provisions

Chapter I: Scope

Generalities

This Code shall apply to:

- the generation, transmission, transit, distribution, storage, marketing, import and export of electricity within the ECOWAS region;
- to works and networks, whether connected or not, unless otherwise stipulated in international agreements.

Exclusions

Excluded from the scope of this Code are installations intended for the distribution of telecommunication signals and installations relating to State security.

Purpose

The ECOWAS Electricity Code defines the common and specific general provisions applicable to the electricity sector in the ECOWAS region, aims at harmonising national electricity legislation, sectoral regulation mechanisms and the institutional structure of Member States and defines and governs the common rules concerning the production, transmission, transit, distribution, storage, cross-border exchanges, supply and sale of electricity by any natural person or any legal entity, whether public or private, within the said region.

More specifically, it aims to achieve the following objectives

- To make the electricity sector more attractive and secure for potential investors/developers at the regional level and in each of the ECOWAS Member States;
- To improve the quality and continuity of service at an affordable cost;
- To improve the governance of the regional electricity sector;
- To promote competition in the sector; - to allow access to electricity services for all citizens in line with the objectives of SE4ALL and SDG 7;
- To contribute to the improvement of the governance of the electricity sector at the regional level, in terms of transparency, accountability, solvency and integration.

Chapter II: Definitions

"**Authorisation**" is a generic term which means an agreement given by the Competent Authority and materialised by a legal act granting the right to a public or private operator to carry out an activity in the electricity sector, and noting that the operator meets the conditions and obligations to which it is subject by the law of the State and its implementing texts;

"**Balancing Service**" means a service operating under market rules, intended to contribute to the security of the electricity system and to provide a price reference for the settlement of imbalances;

"**Electricity Sector**" means all the structures, works and industrial activities carried out in the ECOWAS region, related to the production, transmission, transit, distribution, storage, marketing, import and export of electricity;

"**Competent Authority**" means a legal person under public law empowered to conclude, sign or issue the legal instruments necessary to carry out the activities referred to in this Code;

"**Cross-Border Interconnector**" means the transmission or distribution line which crosses or spans a border separating the sovereignty areas of Member States and which connects the transmission systems of the sovereignty areas of Member States;

"**Cross-border project / Cross-border transaction**": means a project, transaction or power purchase agreement concluded within the framework of the Regional Market between a seller and a buyer of electrical energy for the supply of electricity using the use of the Transmission System and a cross-border interconnection whereby a seller undertakes to inject and the buyer to withdraw the agreed volume of electricity within the agreed time interval(s) at a price agreed by the parties;

"**Direct Line**" means an electricity line connecting an isolated generation site to an isolated customer or an electricity line connecting an electricity producer and an electricity supply undertaking to supply their own establishments, subsidiaries and eligible customers directly;

"**Eligible Customers**" means customers who are free to purchase electricity from the supplier of their choice; "Commission" means the ECOWAS Commission; "Congestion" means the condition of a power line where the demand for transmission capacity is greater than its maximum capacity;

"**Electricity Exchange**" means a platform for wholesale electricity trading; "Grid Code: means the document that defines all the technical and operational standards, procedures and specifications applicable to the various players in the electricity sector for connection to the electricity grid;

"Energy Efficiency": according to the ISO 50001: 2011 standard, is the ratio, or other quantitative relationship, between a performance, service, good or energy produced and an energy input. It is a comprehensive or integrated approach to influencing the amount and timing of electricity consumption in order to reduce primary energy consumption and peak loads;

"Energy" includes any form of energy derived from one or more of the following sources: Solar, wind, biomass, fossil, geothermal, marine, nuclear or hydro;

"Eligible customers" means customers with a consumption of more than gigawatts per hour per year who have the possibility to conclude supply contracts with generators and supply undertakings outside the territory covered by the system;

"Electricity sector" means all the structures, works and industrial activities carried out in the ECOWAS region, related to the production, transmission, transit, distribution, storage, marketing, import and export of electricity; **"Services of general interest"**: Services of general interest" means service activities, whether or not marketed, which are considered to be of general interest by the public authorities and are therefore subject to specific public service obligations;

"Energy service(s)" means the activities of production, transmission, distribution, import, export, marketing, maintenance and control necessary for the provision of these activities, which are provided by the relevant public authorities of each Member State or the delegates of these authorities, with a view to supplying electricity to the whole of the national territory in the general interest in accordance with the rules defined by the State;

"ECOWAS Regional Electricity Regulatory Authority (ERERA)" means the regional electricity regulatory body established by the Supplementary Act A/SA.2/01/08 of 18 January 2008;

"Easement" means the charges imposed on State or private property to fulfil any public service function of electricity. An easement is an actual charge on land for the use and benefit of land belonging to another owner. As a right in rem in immovable property which is attached to the buildings to which it applies, it is instituted not for the benefit of the owner but rather for the benefit of the dominant land;

"Governance" means how decisions are taken and implemented in an organisation;

"Integrated electricity undertaking" means a vertically or horizontally integrated undertaking;

"Investor" means any natural or legal person making an investment in the territory of a Member State in accordance with the applicable legislation of that Member State;

"Member State" or "State" means a Member State of the Community as defined in paragraph 2 of Article 2 of the Revised ECOWAS Treaty or any Member State of the West African Power Pool, and "Member States" shall be construed accordingly or **"TSO"** means any natural or legal person responsible for operating, maintaining and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, as well as for ensuring the long-term ability of the system to meet foreseeable demand for the transmission of electricity;

"Network access": means the possibility for a user to access a network within the framework of a contract that binds him to a network operator or an access manager designated following this code;

"Segments of the electricity sector" means any economic activity relating to the production, transmission, transit, distribution, storage, import, export and marketing of electricity;

"Project Authorisation" means the decision of the Competent Authority or Authorities authorising the Promoter of an energy project to launch and implement the Project. This decision may take the form of a licence, permit or any other authorisation required for the purpose of carrying out the proposed project;

"Partnership Contract" means a contract by which a public person entrusts to a private partner, a legal person governed by private law, for a specified period, depending on the amortisation period of the investments or the financing methods adopted, a global mission having as its object the construction or transformation, upkeep, maintenance, operation or management of works, equipment or intangible assets necessary for the public service for which the Contracting Authority is responsible, as well as all or part of their financing means the legal person under public or private law to whom the Contracting Authority delegates the management of a public service within the framework of a public service delegation as defined below;

"Public Service Delegation" : means a contract by which a legal person under public law entrusts the management of a public service for which it is responsible to a public or private delegate, whose remuneration is substantially linked to the result of the operation of the service;

"Promoter" means the applicant for a permit for a Project or the public authority that has the initiative for a Project;

"Public service" means the mission of general interest entrusted to the public person as well as activities of general interest undertaken by a public person or by a private person under the control of a public person;

"Public electricity service" means the general interest mission of the electricity sector which consists of the production, transmission, transit, distribution, storage, marketing, import and export of electricity with a view to supplying the entire national territory in the general interest in accordance with the rules laid down by the State;

"Regional Market" means the system of transactions and exchanges of electricity between Member States implies the system of transactions and exchanges of a commercial nature relating to flows of electrical energy and associated energy services as defined in this Directive which transit across the borders of Member States through the transmission lines and related facilities of the WAPP interconnected system;

"Regulatory Authority/Body": means an administrative authority designated by the competent authority to exercise control over companies in the electric power sector, including RE or organisations, of the application of the legal provisions in force and the effective functioning of the market in relation to the objectives adopted by the competent authority;

"Regional Transmission System" or **"Interconnected System"** means a system consisting of several transmission and distribution systems linked together by one or more interconnections;

"Self-generator" means any natural person or legal person under public or private law who generates electricity for its own needs and who may, under certain conditions, sell its surplus production;

"Transit" means the transport of electricity using the transmission infrastructure of a Member State which is neither the State of origin nor the State of destination;

"Transmission System Operator": or **"TSO"** means any natural or legal person responsible for operating, maintaining and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet foreseeable demand for electricity transmission;

"Universal service" means every customer's right to be supplied, in the territory of a Member State, with electricity of a specified quality;

"Vertically Integrated Company" means any company carrying out more than one economic activity in the electricity sector, in particular in the generation, transmission, distribution and supply segments;

"Vertically integrated Undertaking" means an undertaking or group of undertakings performing at least one of the functions of transmission or distribution, and at least one of the functions of generation or supply of electricity;

Book 1

Organization and Operation of the Electric Power Sector

General Principles

Legal, Institutional, Economic and Regulatory Standards and Procedures

Title I: General Dispositions

Chapter I: The public service of electricity

Section 1: Principles of the public electricity service

Article 1: Article 1: General principles

The fundamental principles inherent in the public service to which the national electricity companies and any delegatee of the service of production, transport, distribution and sale of electrical energy are subject are as follows:

- a) Continuity of the public service:** The public person or its delegatee are guarantors of the continuity of the public service;
- b) Transparency:** The public entity or its delegatee are obliged to communicate administrative and contractual documents in accordance with the applicable legislation and must give reasons for their administrative decisions that have an impact on public finances, users or the environment;
- c) The neutrality of the public service:** The public entity or its delegatee may not show favouritism or grant undue privileges to third parties involved in producing and supplying electricity to users. Free competition between the different actors delivering energy services must be applied in accordance with the principles defined in the ECOWAS instruments;
- d) Respect for equal treatment of users:** As a corollary to the principle of free competition defined in paragraph 3.1 - c) above, all users of the public electricity service who meet the same conditions must benefit from the same treatment, except in the case of an overriding reason duly justified by the public entity

Article 2: Equal access and right to electricity supply

The purpose of the public electricity service is to guarantee, in the public interest, the supply of electricity and access to electricity services to the entire population of the member countries of the ECOWAS region.

To this end, the Member States must guarantee the supply of and access to safe, sustainable, competitive energy at reasonable prices, in accordance with the principles of equality, continuity

and adaptability, as well as under the best conditions of safety, quality and cost, price and economic, social and energy efficiency.

Section 2: Missions and Obligations of the Public Electricity Service

Article 3: Missions of the Public Electricity Service

The missions of the public electricity service that the Member States must respect are articulated around the following axes:

- a) Balanced development of the electricity supply;
- b) Development and operation of public electricity transmission and distribution networks;
- c) Energy efficiency; and
- d) The supply of electricity throughout their national territory.

Article 4: Public service obligations

1. Public Service Obligations of Public Service Delegates

The authorizations or public service delegations granted by the competent authorities to public or private third parties for the execution of generation, transmission, distribution and sale of electrical energy, the terms and conditions of which are determined by the regulations in force in each Member State, must necessarily include the nature and scope of the public service obligations to which these third parties are subject in the context of their delegation agreement or the authorization issued.

However, the contracting authority and the Member State shall remain responsible for compliance with the public service obligations and the performance of the public service mission incumbent upon it vis-à-vis users and any other third party.

2. Other obligations imposed on the public service delegate

Member States may impose public service obligations on Public Service Delegates providing energy services within the meaning of this Code relating to: (i) the safety, (ii) the regularity, (iii) the quality and (iv) the price of the electrical energy sold.

These obligations must also include the measures to be undertaken by them to protect the environment, enhance energy efficiency and the development of electricity generation from renewable energy sources.

These obligations must be clearly defined, transparent, non-discriminatory, and verifiable, and ensure that WAPP utilities have equal access to domestic users.

Article 5: Treatment of users residing in urban, suburban, and rural areas

Member States shall ensure that the entire population in their territory, whether in urban, peri-urban or rural areas, has the same access to affordable quality energy services.

Differences in treatment between users located outside electrified urban or rural areas may only be adopted by Electricity Companies and/or their Public Service Delegates in the event of a compelling reason duly justified by a comparative analysis of the cost of supplying electricity.

Article 6: Sustainable Development and Corporate Responsibility

Member States shall ensure that Electricity Companies and/or Public Service Delegates integrate social concerns and ecological constraints of the areas where energy projects are developed in accordance with the applicable law of the Member States, ECOWAS Directives, Decisions and Regulations, as well as with international best practices in the electricity sector

Article 7: Protection of the environment

The public service obligations of Member States include respect for environmental protection, the principles of which are enshrined in the ECOWAS States Treaty as well as in the ECOWAS Environmental Policy established by the ECOWAS Commission in 2008 and the Energy Protocol (Art. 18 & 19).

Member States shall ensure that activities related to the generation, conversion, storage, distribution, distribution, import, export, and sale of electric power do not adversely affect the environment per the commitments undertaken under the Energy Protocol (Art.19).

Member States undertake to take all necessary measures to reduce the adverse environmental impact of any activity related to the provision of energy services.

Member States undertake to adapt their national legislation to international environmental norms and best practices to achieve the objectives of the Energy Protocol through, inter alia, the adoption

of rules, norms, technical standards and operational procedures aimed at preserving the environment. They undertake, in particular, to collect and share information on the development and implementation of energy policies that promote proven, sustainable and affordable environmental protection actions and cost-effective practices and technologies.

Article 8: User rights and consumer protection

1. Consumer protection

Under the provisions of the ECOWAS Investment Code (Article 33) relating to consumer protection, Member States shall create or develop adequate, clear, transparent and effective alternative dispute resolution mechanisms and redress procedures to deal with user complaints relating to the provision of energy services and to ensure the resolution of consumer disputes concerning the provision of such services.

2. WAPP Notification

As part of the monitoring by the ECOWAS specialised bodies, Member States shall inform the competent authorities of the WAPP System of all measures they have taken to fulfil the universal service and public service obligations as described in Chapter 2 of Title 1 of this Code.

They shall notify the WAPP System every two (2) years of any changes to these measures, whether or not they require a derogation from this Code.

Article 9: Consideration of gender impact in the development of energy projects

1. Equal treatment of vulnerable populations

Under the Regional Guideline on Gender Assessments in Energy Projects of June 4, 2017, which aims to ensure that vulnerable and marginalized population are not excluded as stakeholders and beneficiaries of energy infrastructure development, and under the provisions of this Code, Member States are required to:

- a) Ensure that the specific interests of women and men, as stakeholders, are taken into account in the development of energy projects within the meaning of this Code;
- b) Ensure that potentially negative and discriminatory impacts on women and men resulting from energy project development are recognized and avoided or mitigated to the extent possible;

- c) Ensure transparency in energy project planning and implementation processes to promote and increase the participation and capacity of men and women, including customers, employees, managers, investors, government officials and other stakeholders;
- d) To develop a harmonized legal or regulatory framework in accordance with the standards and principles set out in the above-mentioned Directive on gender assessments in energy projects, in this Code and in any other relevant ECOWAS text;
- e) Implement operational strategies to achieve the objectives of the Directive on Gender Evaluation in Energy Projects.

2. Monitoring and Control of regulatory authorities in the electricity sector

The electricity sector regulatory authorities of Member States and the ECOWAS regional electricity sector regulatory authority, ERERA, shall oversee the effective implementation of the Regional Directive on Gender Assessments in Energy Projects of June 4, 2017 Code as set forth above.

Section 3: Operation and functioning of the public electricity service

Article 10: Main Objectives

Under the provisions of the ECOWAS Council of Ministers' Directive on the organization of the regional electricity market adopted on June 21, 2013, it is recalled that the public electricity service contributes to:

- a) Independence and security of supply,
- b) Air quality and the fight against global warming;
- c) The optimal management and development of the resources of Member States;
- d) Energy demand management;
- e) The competitiveness of economic activity and
- f) The control of technological choices aiming at the rational use of energy.

Member States may apply within their national electricity sector, in a transparent manner and under the supervision of the regulatory authority of the sector, provisions in the following areas:

- a) The terms of participation in the development of the public electricity service in areas not served;
- b) The terms of financial assistance between the different distribution zones in order to limit the tariff differences resulting from cost prices that may be very different;

- c) Special protection for vulnerable consumers, such as specific social tariffs.

Sub-section 3.1: Functioning of the public electricity

Article 11: Definition of common principles or rules for the conduct of generation, transmission and distribution activities.

1. Production activities

a. Market Access

To ensure competition and affordable services, Member States and national regulatory authorities shall facilitate cross-border access for electricity suppliers from different energy sources and new energy producers.

b. Authorization procedure for new production capacities

The authorization procedure for new electricity generation capacity must include:

- a) Permanent, transparent and public information on the needs and the access procedure;
- b) The modalities for processing unsolicited applications;
- c) The granting of production licenses.

c. Procurement for the development and supply of new energy capacity

The procurement procedure for the supply of new energy capacity should be initiated and conducted either by the Ministry in charge of energy, as the contracting authority, or by the National Electricity Regulatory Agency, if it exists, or by the Distribution Company, provided that the latter does not participate in the tender. All these possibilities or restrictions depending on the law in force in the Member State.

The rules of the tendering procedure, the eligibility and admissibility criteria of the candidates as well as the bid selection criteria must be clearly defined.

Applications for licenses are processed by the Electricity Sector Regulatory Authority and approved by the Ministry in charge of energy. The Ministry in charge of energy can also process them.

The Member States undertake to implement specific procedures for production from renewable energy sources.

2. Electricity transmission activities

a. Dissociation

In order to meet the principle of free competition and competitiveness of the electricity market, Member States must consider the unbundling of generation, transmission and distribution structures

The transmission system owner can both operate the transmission system and handle Transmission System Management (TSM or dispatching), just as the two activities can be separated.

The establishment of a system operator independent of the generation and distribution structures allows a vertically integrated company to retain ownership of the network assets while at the same time ensuring effective separation of interests, provided that the independent system operator assumes all the functions of a network operator and that there are clear regulations and comprehensive regulatory control mechanisms.

The transmission system operator shall have effective decision-making rights, independent of the Vertically Integrated Company, with respect to assets necessary to operate, maintain or develop the transmission system.

Where an Independent System Operator has been designated, the Transmission System Owner:

- a) Finance investments decided by the Independent System Operator and approved by the Regulatory Authority, and/or provide guarantees to facilitate the financing of any network expansion, and/or agree to their financing by any interested party, including the Independent System Operator;
- b) Provide coverage for liability related to the network assets, excluding liability related to the tasks of the independent system operator.

b. Designation and certification of transmission system operators

Establishing a transmission system operator is the responsibility of each Member State whose national regulatory authority in charge of the electricity sector must designate and certify it.

At the regional level, ERERA confirms the certification issued by the national regulatory authority and registers the system operator with the ECOWAS Commission.

c. Transmission System Operations Activity

i. Tasks and obligations of the transmission system operator

The tasks and obligations of the transmission system operator are as follows:

- a) To ensure the long-term capability of the system to meet reasonable demands for the transmission of electricity;
- b) To operate, maintain and develop, under economically acceptable conditions, safe, reliable and efficient transmission systems, with due regard to the environment;
- c) To provide the appropriate means to meet service obligations;
- d) Contribute to security of supply through adequate transmission capacity and system reliability;
- e) Manage the flow of electricity on the system, taking into account exchanges with other interconnected systems;
- f) Ensure the availability of all necessary ancillary services;
- g) Provide the operator of any other system interconnected with its system with sufficient information to ensure the safe and efficient operation, coordinated development and interoperability of the interconnected system.

ii. Call of the production units, balance and adjustment, supply-demand, losses

- a) The dispatch of generation facilities and the use of interconnectors shall be based on criteria that shall be approved by the national regulatory authorities if they are competent in the matter, and that shall be objective, published and applied in a non-discriminatory manner in order to ensure the proper functioning of the internal electricity market. These criteria shall take into account the economic precedence of electricity from available generation facilities or transfers through interconnectors, as well as the technical constraints on the network;
- b) The same rules of economy and transparency are applied to achieve the conditions of balance and adjustment of supply to demand and the supply of energy corresponding to losses in the network.

iii. Confidentiality for Transmission System Operators and Transmission System Owners

- a) Without prejudice to any obligation to disclose information required under applicable law in Member States and within ECOWAS, the Transmission System Operator shall

maintain the confidentiality of any commercially sensitive information that comes to its attention in the course of performing its duties.

- b) Information about transmission system activities that may potentially be of commercial benefit to its recipient shall be made available to operators in a transparent and non-discriminatory manner.

iv. *Independence of the transmission system operator's staff and management*

- a) Where the transmission system operator is part of a vertically integrated undertaking, the transmission system operator must be independent in its organization and decision making from other activities not related to transmission.
- b) The rules set forth in the first paragraph of this Article 9.4 – d – a) above do not create an obligation to separate the legal form and ownership of the assets of the Vertically Integrated Enterprise's transmission system beyond the limits provided for in the WAPP Intergovernmental Framework Agreement on the Establishment of the WAPP, (Decision A/DEC.5/12/99 of the 22nd Summit of the ECOWAS Conference of Heads of State and Government)

v. *Principle of non-discrimination*

- a) Member States shall ensure that transmission system operators establish and implement a compliance program containing measures taken to ensure that discriminatory conduct is excluded and that compliance with this program is appropriately monitored.
- b) This commitment program lists the specific obligations imposed on the employees of the transmission system operator in order to ensure the achievement of the stipulated objectives. It shall be submitted to the regulatory authority for approval. Without prejudice to the powers of the regulatory authority of the Member States, compliance with the above commitments shall be independently monitored by the relevant authorities of the Member States.

vi. *Transportation System Development Plan*

- a) Each year, the transmission system operators shall submit to the regulatory authority a 10-year network development plan based on existing and forecasted supply and demand after consultation with all interested parties. The network development plan shall contain effective measures to ensure network adequacy and security of supply. The plan shall be consistent with the WAPP regional plan.

- b) The transmission system operator shall be responsible for the timely completion of the regional sections of works to be built in its franchise area. To this end, it shall be entitled to raise funds on the capital market by means of a loan and/or an increase in its own capital;
- c) The Regulatory Authority shall verify the conformity of the execution of the plan as approved and may impose on the operator the implementation of the said plan as well as the installation of the facilities provided for in the event of its failure.

vii. *Obligation to connect newly established power plants to the transmission system*

- a) The transmission system operator shall define and publish transparent and efficient procedures for the non-discriminatory connection of new power plants to the transmission system.
- b) These procedures are subject to approval by the national regulatory authorities in accordance with the provisions of the Network Code.

The transmission system operator may not refuse:

- a) Neither the connection of a new power plant on the grounds of possible future limitations in the available capacities of the network, such as congestion on remote parts of the transmission network, nor
- b) A new point of connection on the basis that the new point of connection will result in additional costs due to the requirement to increase the capacity of system elements in the area near the point of connection.

3. Distribution activities electricity supply

a. Dissociation

When a distribution-supply function is exercised within a vertically integrated company, Member States will choose between unbundling the ownership structures or creating conditions of independence for the management of the distribution-supply function. If they choose the second option, the Authorities have two (2) choices:

- a) Procurement of electricity by the distribution system operator for supply to regulated customers via the wholesale market; or
- b) Allow regulated customers to acquire electricity under conditions (quantities and prices) set by the national regulator.

The distribution system operator shall have effective decision-making autonomy with respect to assets for operating, maintaining or developing the network independently of vertically integrated companies, as well as the human, technical, physical and financial resources to carry out its activities.

b. Certification

The electricity regulator shall certify the distribution system operator in accordance with the applicable law.

c. Tasks and obligations of the distribution system operator

The distribution system operator shall be responsible for :

- a) Ensure the long-term ability of the network to meet reasonable demands for the distribution of electricity;
- b) Operate and maintain the system; and
- c) to develop under economic conditions a secure, reliable and efficient electricity distribution system in its area in accordance with the principle of environmental protection and energy efficiency

d. Information and non-discrimination

The distribution system operator must not discriminate between system users or classes of system users and must favour its related undertakings.

The distribution system operator shall provide customers with the information they need to access efficient power and to utilise the distribution system's network.

Member States may require from the distribution system operator, when procuring new generating capacity, to give preference to those using renewable energy sources or waste

When planning the development of the distribution system, the distribution system operator shall consider energy efficiency, demand side management and/or distributed generation measures that may have an impact on the sizing of the system.

e. Confidentiality obligation of distribution system operators

The distribution system operator shall be bound by the obligation of confidentiality of data provided by eligible customers, supplied via the medium voltage (MV) distribution networks.

Article 12: Management of surplus electrical energy

1. Terms and conditions for the disposal of surplus electrical energy

The surplus of electric energy produced in the framework of domestic self-consumption is sold to the national electricity distribution structure, partially or totally, and this within the framework of a standard contract approved by the national electricity regulatory authority.

The technical conditions of this sale are specified in the said standard contract.

2. Sales Tariffs

The sales tariffs in member countries are set by their respective Electricity Regulatory Authority. The costs of connecting the renewable energy production facilities to the national electricity grid, as well as the costs of reinforcing the national electricity grid, if necessary, for the operation of evacuating the electrical energy produced, are to be borne by the producer.

Article 13: Methods of connection to the national electrical network

The National Distribution System Operator shall put in place the appropriate standards for the injection of electricity produced from renewable energy sources in order to guarantee the quality of the electrical energy on the network.

Article 14: Distribution and metering standards

In the connection contract between the Distribution System Operator (DSO) and the Customer, the WAPP System Electricity Market Directive aims to develop Energy Efficiency by proposing the adoption of prepayment and smart meters depending on the electricity class of customer.

Sub-section 3.2: Determination of the nomenclature/tariff schedule of the electric utility

Article 15: General principles

- a) The bodies responsible for regulating the electricity sector in each Member State shall, prior to their entry into force and in accordance with the law applicable within their territory, determine or approve the methodologies used to define or establish:
 - i. Conditions for connection and access to national networks, including transmission and distribution tariffs. These tariffs, or methodologies, must allow for the investments necessary for the viability of the networks;

- ii. Conditions for the provision of adjustment services.
- b) Notwithstanding the provisions of Article 19 (a) above, Member States may provide that the regulatory bodies develop within the State's legislative framework for formal decision, the tariffs or methodologies referred to in this paragraph, as well as the modifications referred to in paragraph 4. The tariffs, methodologies, or amendments thereto shall be published with the decision upon formal adoption. Any formal rejection of a request for a tariff revision shall also be made public, together with its justification.
- c) The regulatory bodies shall have the power to require transmission and distribution system operators, where necessary, to modify the terms and conditions, tariffs, provisions, mechanisms, and methodologies referred to in paragraphs 1 and 2 to ensure that they are proportionate and applied in a non-discriminatory manner.

Article 16: Claims

Any party with a grievance against a transmission or distribution system operator concerning the matters referred to in Articles 11 and 13 may address the regulatory body, which shall take a decision within two months of receiving the complaint.

This period may be extended by two months if the regulatory body requests additional information. A further extension of this period is possible with the consent of the complainant. This decision is binding insofar as it has not been annulled by EREERA following an appeal to it. Where the complaint concerns connection tariffs for new large-scale production facilities, the two-month time limit may be extended by the regulatory body.

Any aggrieved party having the right to file a complaint regarding a decision on methodologies taken under the provisions of Article 19 above, where the regulatory authority has a duty to consult with respect to the proposed methodologies, may, no later than two months or a shorter period if the Member States so provide, following the publication of the decision or proposed decision, file a complaint for review. This complaint shall not have a suspensive effect.

Member States shall take the necessary measures to ensure that regulatory authorities are able to discharge their obligations under Articles 16, 17, 19 and 20 in an efficient and timely manner.

The regulatory authorities shall ensure compliance with this Directive and with the terms of the contracts for the delegation of management of electricity systems in the exercise of their functions.

Where appropriate, in order to meet the objectives of this Directive, they shall cooperate with each other and with the WAPP.

Sub-section 3.3: Development of Renewable Energies (RE) and protection of the environment

The development of renewable energy is one of the main objectives of ECOWAS energy policy as recognized by Member States under the provisions of Article 28, Paragraph 2 (c) of the revised Treaty.

Article 17: Promotion of renewable energy and energy efficiency markets

Member States should firmly commit to adopting the necessary administrative, legislative, and regulatory measures to contribute to:

- a) To the improvement of energy efficiency;
- b) The development and use of renewable energy sources;
- c) The promotion of the use of cleaner fuels; and
- d) The use of technologies and technological means to reduce pollution.

Article 18: Directive on common rules for the internal market and the regional market and development of renewable energy

The Member States undertake to transpose into their national legislation and regulations the standards and principles described in the Directive defining the common rules for the internal and regional electricity markets.

Article 19: Preservation of the quality of the environment

Operators of electric power generation facilities from renewable energy sources are required to adopt the provisions for the preservation of environmental quality.

To this end, any producer of electricity from renewable energy sources is obliged to proceed, at its own expense, with the dismantling and removal of the elements of the electricity production works and the restoration of the production site to its original state at the end of the operating period or in case of necessity.

The modalities for dismantling, waste removal and site restoration shall be determined by the competent authorities of the Member States in charge of the electricity sector and the environment.

Chapter II – Property Rights

Article 20: Generalities

The development of energy projects undertaken by public authorities or in partnership between the public and private sectors includes the use of real estate and/or land. Secure land tenure for the location and operation of energy services is a prerequisite for investment and financing required by the developers and lenders involved in these projects. The assurance of free disposal of land and real estate for the planned projects must be guaranteed by the State.

Servitudes also contribute to securing cross-border exchanges by defining the conditions for occupying and using the land for the construction of electricity transmission and distribution infrastructures and the installation of networks and cross-border exchanges.

The competent authorities of the Member States shall assist the parties involved in the implementation of these projects to deal with any land claims, assess the status of easements and long leases that may impede their implementation.

Article 21: The public utility servitude

Public utility servitudes are administrative limitations on the property of others determined by an objective of general interest, which places burdens on land or buildings, having the effect of limiting or prohibiting the exercise of the rights of owners over these assets, or sometimes of requiring them to carry out work.

These administrative limitations on property rights may be instituted for the benefit of the State, local authorities, public establishments, the delegate of public services or works or private persons carrying out an activity of general interest.

Public utility servitudes are always justified by the general interest, which takes precedence over private interests, and are of public order.

Notwithstanding the provisions of Article 20 above, public utility easements may not be created by private law agreements.

The purpose of the signed agreements is to adjust the occupancy mechanisms with regard to the rights of the affected owners.

Article 22: Scope of application of easements

The public domain of the State that may be subject to easements includes:

- a) The rights-of-way and territorial locations of the means of production and all the rights-of-way and territorial locations of the means of transport, dispatching, storage and distribution;
- b) The production, transport, dispatching, storage and distribution works and equipment belonging to the State;
- c) All the transport, dispatching, storage and distribution works and equipment carried out on the public domain.

The following are also part of the public domain of the State, after a declaration of public utility:

- a) The land and land sites necessary for the realisation of the means of production belonging to the State;
- b) The land and land sites necessary for the realisation of the means of transport, dispatching, storage and distribution belonging to the State;
- c) The works and equipment of production, transport, dispatching, storage and distribution to be built belonging to the State.
- d) Electricity transmission or distribution networks are also dependencies of the artificial public domain of the State and protected as such.

Article 23: Right to occupy the public domain

Within the framework of the development of the Regional Market, Member States expressly undertake to grant to the operators of transmission and distribution lines as well as their dependencies, all authorisations, easements, road permissions as well as related rights necessary for the implementation of energy projects on their respective territories.

Article 24: Declaration of Public Utility (DUP)

The declaration of public utility confers on the operator all the rights necessary for the successful completion of the construction, installation and operation of public electrical energy works and infrastructures.

The declaration of public utility justifies the limitation of the rights of the owners who can negotiate with the public authorities the terms of these restrictions or bring an action before the competent courts in case of disagreement in accordance with the applicable law.

Article 25: Servitude procedure

The public utility easements necessarily result from the law and from a declaration of public utility issued after a public inquiry.

The servitude prerogatives entitle their beneficiaries to the implementation of the following principles:

- a) Establish on private property the production, transport, dispatching or distribution works declared to be of public utility, to occupy them, to overhang them or to build underground pipelines as a servitude;
- b) To establish permanent supports or anchors for overhead electricity conductors, either on the outside of walls or facades overlooking the public highway or on the roofs and terraces of buildings, provided that they can be accessed from the outside and subject to compliance with safety, road and town planning regulations;
- c) Passing electricity conductors over private property, subject to compliance with safety, road and town planning regulations;
- d) Permanently establish underground conduits or supports for overhead conductors on private undeveloped land that is not enclosed by walls or other equivalent fences;
- e) Pruning, trimming, or cutting down trees or shrubs on private properties with a view to ensuring the safety of persons and property as well as the continuity of public service.

The installation of conductors or supports on open, undeveloped land does not prevent the owner from having the right to fence or build; this right must be exercised legitimately. However, in this case, the easements necessary for the use and maintenance of the installations therein shall remain. No compensation is due to the owners because of these easements.

The Delegate of the public service for the transport or distribution of electrical energy may carry out on the public highway and their dependencies any work necessary for the establishment and maintenance of the works for which it is responsible in accordance with the road, environmental and town planning regulations, the town planning master plans, and the regulations in force concerning the safety, the police and the control of electrical energy distribution installations.

When changes in the layout or right-of-way of public roads or the opening of new roads, justified by the interests of traffic, lead to changes in public distribution facilities, the costs incurred by these changes shall be borne by the public service delegate for the transmission or distribution of electrical energy.

The above rights are rightfully exercised by their beneficiaries. However, a right of way must remain in place to allow the concession holder to maintain the installations.

Article 26: Compensation

The owner whose property is encumbered may claim compensation if it is shown that he or she suffers direct, present, material, and certain damage.

The servitude entitles the holders of rights in the real property to compensation when:

- a) Is likely to result in a change in the condition of the premises resulting in a permanent taking of the real property subject to it; or
- b) results in a reduction in the effective use of the real property;
- c) Determines a current, direct, material, and certain damage.

Payment of compensation is the responsibility of the power line operator.

In the absence of an amicable agreement, the compensation shall be fixed by the judge in charge of expropriation procedures and shall be evaluated in accordance with the law relating to expropriation for public utility purposes in force in the Member States.

No compensation is due to the owners for the maintenance easement.

In the event that the existing easement is incompatible with the construction or operation of the public work in question, the competent authorities of the Member States shall implement a procedure of expropriation for public utility. This procedure will entitle the owner to fair and prior compensation in accordance with the applicable law in force in the Member States and ECOWAS regulations.

If the competent authorities of the Member States do not expropriate the owner for public utility reasons, the latter will have the possibility, under the principle of reparation, to initiate a procedure for the right of relinquishment and to compel the beneficiary of the easement to acquire the land thus encumbered in return for the payment of compensation fixed under the same conditions as those provided for in the context of an expropriation.

Article 27: Security and protection

Electricity system operators are empowered to take all necessary measures to protect generation, transmission, dispatching or distribution works and installations, including the rights-of-way of the transmission system or distribution system works and installations, in compliance with the laws and regulations in force.

To this end, any unauthorized person should be prohibited from:

- a) Disturb, alter, modify or operate, under any pretext whatsoever, the equipment and works used for production, transport, dispatching, distribution or marketing;
- b) Placing any object on or under the conductors of the transmission system or the distribution system, touching them or throwing any object that could reach them;
- c) Obstruct access to public distribution works;
- d) Enter, without being duly authorized to do so, buildings dependent on production, transport, dispatching, distribution or marketing, or introduce or allow animals to be introduced there;
- e) Occupy, in any manner whatsoever, the rights-of-way of transmission system or distribution system facilities.

Chapter III: Organization and operation of the regional electricity market - Proposal for a Directive on common rules for the internal market and the regional market - Design and development of regional market rules

Section 1: General principles

Article 28: Objective

The purpose of this Directive is to define the general principles governing the Regional Electricity Market within the framework of the ECOWAS Energy Protocol, in particular its organisation and operation, and the relevant ERERA Guidelines.

Article 29: General dispositions

Given the different degrees of market openness in Member States, the establishment of fair rules applicable to trade in the regional electricity market in the ECOWAS region should make it possible to establish a well-regulated trading system while taking into account both national markets and market development imperatives Region

To this end, a compensation mechanism for cross-border electricity flows should be established, and harmonized principles on cross-border transmission charges and the allocation of existing interconnection capacities between national transmission systems should be established.

Section 2: Common rules for the organisation of the internal market and the regional market

Article 30: Minimum technical requirements for member states

The Competent Authorities of the Member States shall establish the technical safety criteria and ensure that the requirements set out the minimum technical design and operational requirements for the connection to the system of generating installations, distribution systems, directly connected customer equipment, interconnector circuits and direct lines are made public and published.

These technical requirements must ensure the harmonization of technical criteria, and the interoperability of networks and be objective and non-discriminatory in accordance with the provisions of the regional network code.

The technical requirements shall be notified to the WAPP by the Transmission System Operator in the Member State, in accordance with the WAPP Intergovernmental Framework Agreement

providing for a procedure for the provision of information in the field of technical standards and regulations.

Article 31: The pricing system and rates

1. Legal regime

Under Article 18.5 of Regulation C/REG.27/12/07 of December 15, 2007, as amended, EREERA has been mandated to set the cost accounting rules and the structure of tariffs for transport and related services and to approve tariff proposals submitted by operators.

Directive C/DIR/1/06/13 of June 21, 2013, on the organization of the regional electricity market, provides that EREERA shall publish, in accordance with its procedures and after consultation with stakeholders, the methodology for transmission pricing in the regional electricity market that was effectively established in August 2015.

The main aspects of transit fee determination and transportation pricing in general concern:

- a) The basis for revenue recovery, i.e., the size of the asset base and its valuation, and whether to include charges for congestion and/or network losses;
- b) How costs are allocated among users of transmission and distribution services, the distinction between costs incurred by producers and consumers or the differentiation of costs based on location factors.

2. Cost recovery

The components of cost can be recovered through transportation prices, including:

- a) Investment costs for the network and equipment;
- b) Operation and maintenance costs;
- c) Losses;
- d) Congestion.

3. Tariff Methodology for Transmission System Costs and Tariff

The selected Regional Transmission Tariff Methodology is a point-to-point MW-km tariff methodology based on load flow. The tariff is calculated for each and all bilateral exchanges within ECOWAS.

At a minimum, the basic steps of the methodology to be specified and published by EREERA are Definition and valuation of transmission system assets;

- a) Calculation of the revenue requirement for each Transmission System Operator (TSO) asset involved in the bilateral exchanges;
- b) Calculation for each regional bilateral interchange, transmission system usage and associated transmission losses;
- c) Calculation of the required revenues for each TSO, for each bilateral exchange;
- d) Calculation of the transmission tariff and the cost of transmission losses for the buyer of each regional bilateral exchange.

The System-Operator-Market (SMO) will collect transmission tariff and transmission loss revenues from the buyers of the bilateral exchanges. ERERA and OSM charges will be determined by applying a rate per kWh traded. The rates will be set by an ECOWAS Regulation on levies for the operation of the regional electricity market. OSM will then be required to pay TSOs their transmission and loss revenues. Invoicing and payments are based on energy transfer schedules. These will be communicated by the buyer of the regional bilateral contract. Billing and payments will be made on a monthly basis.

4. Congestion and auxiliary services

Congestion management: Congestion is managed on a "first come, first served" basis. The bilateral agreement signed first will be the first to be reduced;

Ancillary services: any transportation equipment dedicated to providing an ancillary service will be funded based on an agreement between the two parties directly.

Article 32: Regime applicable to cross-border transactions

1. Consultations and cooperation between Regulatory Authorities

The regulatory authorities of the Member States shall consult each other and cooperate closely. They shall exchange and communicate to ERERA any information necessary for the performance of their tasks. To this end, the national regulatory authorities may conclude cooperation agreements with each other in order to promote regulatory cooperation.

2. Consultation and cooperation at the regional level

Regulatory authorities cooperate, at least at the regional level, to:

Encourage the establishment of practical arrangements to enable optimal management of the grid, promote power exchanges and the allocation of cross-border capacity, and to enable an adequate

level of interconnection capacity, including through new interconnections, within and outside the WAPP System, so that effective competition can take place and security of supply can be enhanced, without discriminating between supply companies in different Member States;

Coordinate the development of all network codes for transmission system operators and other relevant market participants;

Coordinate the development of congestion management rules.

The Commission may adopt guidelines on the extent of the regulatory authorities' duties to cooperate with each other and with ERETA.

Article 33: Compliance with ERETA regulations

The Regulatory Authorities of the Member States, as well as the ECOWAS Commission, may request the opinion of ERETA on the conformity of a decision taken by a national regulatory authority with the guidelines referred to in any ERETA directive.

Article 34: Transposition of the Directives into national law

Member States shall observe a time limit for any exception requests. This period shall not exceed three (3) months from the date of decision by the Authorized Authority.

Member States shall observe a period of time for the transposition of this Directive into their national legislation or regulations. This period shall not exceed 12 months from the date of the decision of the competent authority.

Chapter IV: Draft Directive for the harmonization of contractual provisions concerning power purchase agreements (PPA)

Article 35: Objectives

The Buyer's primary obligation under the PPA is to pay the agreed tariff when it is due. This obligation between the parties to pay the agreed tariff remains even if the power generated is not actually taken by the Buyer. The payment by the buyer of the energy produced, regardless of the buyer's ability to absorb or use it, constitutes a guaranteed income for the producer, a source of repayment of the loans taken out with the cash flow generated by the project, and a guarantee for the lenders.

This payment obligation is also part of the guarantees and securities issued as part of project finance in order to secure income streams for lenders and equity investors.

Article 36: Key contractual terms of Power Purchase Agreements (PPAs)

ARREC has established a model long-term bilateral contract and a model short- and medium-term bilateral contract under Resolution No. 009-ERERA/17 for the supply of electricity in the regional market. However, these models do not apply to parties that are not WAPP market players and do not include the modalities for the implementation of the "take or pay" guarantees to the power seller, nor the modalities and procedures for the settlement of disputes between the parties to the contract, both of which are essential provisions of the PPAs.

It is therefore important to adjust the models of these contracts to include the clauses identified as essential above and to extend their scope of application to power generation and marketing projects undertaken in the territories of Member States as well as to public or private producers and operators who are not WAPP parties.

Article 37: Content

A model PPA which covers all the above essential clauses and many other aspects is presented in Annex.

Chapter V: Conditions for Connection and Use of the Transmission System and Cross-Border Access Rules

Article 38: Conditions for connection to and use of the transmission system

The procedures for access and the rules for connection to and use of the electricity transmission system refer to the technical standards for the design and operation of the facilities with which the users of the electricity transmission system must comply, including the normative performance of the electricity transmission system at the point of connection and the types of remote information that must be made available to the System Operator by user.

These conditions are defined and described in this Code in Book 2 (Technical Provisions and Rules for Electricity), Title I (Technical Rules for the Electricity Industry), Chapter 2 (Access and Connection to Networks), Section 1 (Technical Rules and Conditions for Connection to and Use of the Transmission System).

Article 39: Cross-border network access rules

1. Third party access

Member States shall undertake to establish a system of third-party access to the transmission and distribution systems for all eligible customers. This system, based on published tariffs, must be applied objectively and without discrimination between network users.

2. Market opening and reciprocity

Member States are gradually harmonizing eligibility criteria and synchronizing their implementation.

3. Market transparency; market control body

A Supervisory Committee is to be set up and will include representatives of the market participants, the regulator, and the network operator.

4. Direct lines

Direct line development is permitted unless it is proven to be detrimental to the public interest.

Article 40: Definition of access rules for eligible customers to the national network

Member States must guarantee non-discriminatory access to generation sources and transmission facilities to all operators. This includes:

- a) The presence of a national Transmission System Operator (TSO) that is legally and functionally independent of the generation and distribution players;
- b) The presence of several independent generation companies competing for bilateral supply contracts with eligible customers registered with the TSO;
- c) The effective widening of market access and the lowering of the eligibility threshold.

Article 41: Access to networks for eligible customers

The access of eligible customers to the networks is one of the indispensable elements in the process of liberalization of exchanges in the electricity sector.

When the opening of access to networks in an ECOWAS country is part of an ECOWAS-wide opening where countries have signed a common Energy Protocol and are interconnected, it is important that the opening in each country is carried out according to a scheme that is as harmonized as possible between the different countries. Ideally, an eligible customer in country A should be able to negotiate in the same way and with the same ease with any other grid access holder, whether it is located in the same country A or in another ECOWAS country.

The organization of access to networks by eligible customers is inseparable from other concomitant measures, mainly:

- a) The existence of competition in production (number of suppliers, cost price level);
- b) The free access of producers to the network;
- c) The existence of a neutral and independent TSO, which is the intermediary responsible for the physical routing of the product between sellers and buyers duly registered with it;
- d) Adherence to a set of technical rules necessary for continuous and smooth operation contained in a network code;
- e) The existence of a market operator that registers participants and proposed transactions verifies the proper execution of physical transactions and facilitates financial settlements between sellers and buyers;
- f) The existence of rules for buy-sell transactions: market rules and market procedures;
- g) The existence of an independent regulator guarantees the accomplishment of the missions of all the actors in respect of the rules and of a sensible adaptation of the rules in case of necessity.

The legislation governing the electricity sector in the Member States is extremely varied as regards the modalities of effective delegation of the public service or the organization of the sector, but any national regulation relating to the role and operation of the regulator must comply with the rules, standards and procedures laid down by the ERERA.

To this end, ERERA will have to prepare a specific directive approved by the ECOWAS Commission to ensure, at the regional level, the harmonization of the conditions of access to the electricity network by taking into account all the aspects that this access implies, without omitting the consideration of the specificities of certain countries.

Article 42: Establishment of a regional wholesale market and network access in the countries

The establishment of a regional wholesale market and the organization of this market will have to be done in a very evolving manner, both in terms of the market players and the products that will be exchanged there.

The first phase of the market launch is mainly characterized by:

- a) One actor per country, normally (but not necessarily) the national TSO or the existing Single Buyer;
- b) The products will be exclusively bilateral contracts, concluded only between countries sharing a common border, starting with the existing exchange contracts between the countries of the region;
- c) The range of current contracts (long-term bilateral contracts) should be enriched by the appearance of medium-term bilateral contracts (months, weeks) then short-term bilateral contracts (weeks, days);
- d) All contracts will have to comply with a "standard" model to be specified;
- e) The registration of actors and contracts and the monitoring of their proper execution will be centralized at the level of the WAPP ICC, with an embryonic market operator to be created.

This first phase of the regional wholesale market has no influence on customer access to networks in ECOWAS countries.

The regional wholesale market is intended to be open, in principle, to all generators and all eligible customers in all countries. The pace of development of the regional wholesale market will have to

be determined. It must be taken into account that the existence of an organized market will normally lead to pressure for its expansion. This is therefore an element to be taken into account in order to accelerate the implementation of network access in most ECOWAS countries.

ERERA shall perform the tasks relevant to its mission, before and after the start of the regional wholesale market, primarily:

- a) The definition of criteria for the approval of players in the wholesale market and the approval of proposed players;
- b) The development of contract models;
- c) Validation of market rules;
- d) Definition of criteria for violations within the market;
- e) Definition of a sanctions regime;
- f) Reception, treatment, and resolution of disputes.

Title II: Guiding Principles and Direction

Chapter I: Generation, Transmission, Distribution, Grid Access, Retail and Smart Meter Licenses

Article 43: Scope of application

The following are placed under the regime of an Authorisation as defined above (Chapter 2 of the Preliminary Provisions):

The establishment and operation of electricity production facilities;

The establishment and operation of transport, transit and storage facilities;

The establishment and operation of low voltage distribution facilities from one or more medium voltage/low voltage transformation points;

The import and export of electricity.

Authorisations for activities in the electricity sector are granted by decision of the Minister of Energy. The examination of applications may give rise to a consultation of any other Ministry concerned as well as representatives of the local authorities on whose territory the electricity installations are developed and operated.

Article 44: Terms of authorisation

The Authorisation Decision includes the basic terms of the operating authorization, including its purpose, duration, and territorial basis. In addition, it specifies:

- a) The rights and obligations of the Permittee, particularly with respect to continuity of service and non-discrimination in rates for users.
- b) The general conditions for the construction and operation of the facilities.
- c) The terms and conditions for applying penalties in the event of violation of the terms of the Authorization Decision.
- d) The conditions for renouncing or forfeiting the Authorization and for force majeure.
- e) The procedure for settling disputes.

Any significant increase in the capacity of the installations must give rise to an application by the Licensee for a new Authorization. Any increase in the capacity of the installations that results in the

above-mentioned threshold being exceeded must give rise to an application by the Licensee for the granting of a Concession.

In the event of withdrawal of the Authorization before the term provided for, for any reason other than the Licensee's failure to perform its obligations, the Licensee shall be compensated for the loss resulting from the early eviction. The rules for determining the compensation are specified in the Authorization Decision and must provide for compensation at least equal to the share of the investments not yet amortized by the Licensee on the date of withdrawal.

Article 45: Special status for transboundary structures

The production of electricity from joint facilities built under international agreements is governed by the provisions set out in those agreements, as is the transmission of energy via interconnection lines.

However, notwithstanding the above paragraph, generation facilities and transmission lines, whether or not developed under the auspices of the WAPP System but already participating or likely to participate in the Regional Electricity Market or managed by a "Market Participant", shall be subject to the provisions of the ECOWAS Energy Protocol and the Decisions and Regulations in force, including:

- a) Compliance with the provisions of Article 7 of the Energy Protocol on transit;
- b) Compliance with the provisions of Article 13 of the Energy Protocol on expropriation;
- c) Compliance with the provisions of Article 18 of the Energy Protocol on sovereignty over energy resources;
- d) Compliance with the provisions of Chapter V: Dispute Resolution, Articles 26 to 28 of the Energy Protocol;
- e) Compliance with the ECOWAS Regional Electricity Market Procedures, in particular Chapter IV on Information Exchange Protocols, including:
 - i) Exchange of Contract Data during Phase 1 of the Contract (Article 17);
 - ii) Determination of the transmission capacity required in Phase 1 of the Market (Article 18) so as not to disrupt transactions or Already Assigned Capacity arising from outstanding PPAs or Bilateral Long-Term Contracts (LTCs);
 - iii) Market data exchanges in Phase 2 (Section 19);
 - iv) Determination of Phase 2 Transmission Capacity Requirements (Article 20).

Chapter II: Development and Implementation of Concession and PPP Projects

Article 46: Harmonisation of the regulation of Public Service Delegation in the electricity sector

- a) Member States shall determine in their legislation the constituent elements of the partnership contract between the public authorities and the private partner, including the subject matter and the nature of the tasks and services that may be delegated, as well as the terms of remuneration of the private partner.
- b) The subject matter of the partnership contract must be, directly or indirectly, the provision of a public service and a substantial part of the risks associated with the provision of the said public service must be borne by the private operator.
- c) The object of PPP contracts is generally defined by its global nature, which is not limited, and may include all or part of the following activities:
 - i. design;
 - ii. financing or part of the financing;
 - iii. construction or transformation;
 - iv. operation;
 - v. management;
 - vi. maintenance;
- d) The PPP regulation may include several modalities of remuneration of the private co-contractor, as follows
 - i. to be spread over the entire duration of the contract;
 - ii. to be linked to performance objectives and/or to the operating revenues of the work or service provided by the co-contractor and levied directly in the form of a fee;
 - iii. to include additional or accessory revenues, known as "enhancement".
- e) As a mechanism that derogates from the general public procurement regime, the use of partnership contracts is subject to the existence of specific circumstances that justify their use. The elements justifying such recourse, such as urgency, the technical complexity of the project envisaged, the quality/price ratio aimed at optimising the commitments of the State (or its constituent parts) and the good use of public funds, should also be clearly established.

- f) The use of PPPs and the identification and approval of projects should be carried out by a team dedicated to the execution of these tasks following the example of the support committees for the implementation of PPPs as they exist in many member countries with specific regulations.

Article 47: Unsolicited tenders

- a) The evaluation and eligibility criteria as well as the conditions for processing unsolicited tenders should be clearly set out in the legislation and/or regulations of the Member States.
- b) An unsolicited tender can be described as a proposal submitted to a contracting authority by a private individual or legal entity with a view to carrying out a project which falls within the sphere of competence of the public entity and which has not been the subject of a public call for competition.
- c) The eligibility criteria for the submission of an unsolicited tender should allow any private entity (natural or legal, including a consortium) to submit an unsolicited tender to a contracting authority for the implementation of a partnership project.
- d) For a bid to be considered spontaneous, the following criteria should be taken into account:
 - i. the contracting authority has not previously stated its intention to carry out the project which is the subject of the spontaneous bid. If the public authorities intended to launch a procurement procedure for the project thus submitted, it will be up to the contracting authority to draw up the terms of reference and other specifications for the project in accordance with the applicable PPP regulations and public procurement legislation;
 - ii. the unsolicited bid should be accompanied by a technical and economic feasibility study, an environmental and social impact study and any other information enabling a precise assessment of the characteristics of the project;
 - iii. these studies must be carried out at the bidder's expense;
 - iv. the bid must meet the needs of the public authority as defined by it.
- e) All unsolicited bids should be subject to a competitive procedure to ensure that the PPP contract is awarded to the most economically advantageous bid in accordance with the

principle of value for money in public procurement. The PPP Regulation should preclude any negotiated or direct tender procedure for an unsolicited bid for a partnership project.

- f) If the unsolicited bid is deemed admissible by the competent authority of the Member State, the latter organises a tendering procedure in accordance with the law applicable to public procurement and/or the award of partnership contracts in accordance with the procurement procedures authorised for PPP projects.

Article 48: Review and proposal of guidelines for the improvement of the legal framework for PPPs in the electricity sector at the level of Member States

Member States shall undertake to strengthen and harmonise the institutional and legal framework of ECOWAS Member States and that of the regional area, particularly with regard to cross-border projects.

Member States undertake to consider the creation of a centre of expertise for public-private partnerships (PPPs) specifically dedicated to the evaluation, procurement and implementation of PPP projects in the electricity sector, including renewable energy projects (RE), and the supervision of regional energy PPPs under the auspices of ARREC.

Article 49: Content

A proposal for a Directive covering all aspects related to the harmonisation of the regulation of Public Service Delegation and the improvement of the legal framework for PPPs in the electricity sector at the level of member countries is presented in Annex B.

Title III: Good Governance Mechanisms

Chapter I: General Principles

It is recognized that the establishment of clear and concise monitoring procedures for energy contracts that enable the competent ECOWAS institutions to exercise the regulatory powers entrusted to them helps to improve the visibility and understanding of the institutional and regulatory environment in which electricity sector players are required to operate, perform their obligations and enforce their rights.

It is therefore recommended that the competent authorities of the Member States establish mechanisms to ensure the fairness, impartiality, transparency and publicity of the decisions, rules, standards and procedures governing the electricity sector.

The accountability of public authorities in the sector towards users, public and private actors and the population in general should also be established as a general principle of governance of the sector.

An effective dispute resolution process that can operate independently and provide alternative procedures such as conciliation, mediation, and expert determination is also a critical component in developing the participation of private actors in the electricity sector.

The existence of these good governance mechanisms also meets the demands of public and private donors, investors and operators in the sector.

Section 1 Operating Rules and responsibility

Good governance in the electricity industry is exercised at the regional level mainly by ERERA, and at the Member State level by Governments and National Regulatory Bodies.

It is based, on the one hand, on fairness, impartiality, transparency and publicity of decisions, rules, norms and procedures as rules of operation and, on the other hand, on improving the visibility and understanding of the institutional and regulatory environment, as well as on the establishment of monitoring mechanisms as obligations of responsibility.

Article 50: Fairness, impartiality, transparency and publicity of decisions, rules, norms, and procedures

- a) Member States and Regulatory Bodies shall contribute to the improvement of the investment climate by ensuring a level playing field for market participation and

promoting economic efficiency, particularly in the areas of competitive pricing systems, quality and service standards and security of supply.

- b) Mechanisms for setting tariffs and open access to networks must be clear, precise, and transparent.
- c) Each Member State shall compensate any financial burden resulting from public service obligations, not provided for in the authorizations, which have the effect of forcing operators to sell at rates below the costs actually incurred.
- d) Member States and Regulatory Bodies shall ensure that all residential or domestic customers, whether in urban or rural electrified areas, and professionals, where they consider it appropriate, have the right to benefit from universal service. Differences in treatment may be applied between users located outside an urban area or an electrified rural area only insofar as they are justified by an objective difference in situation with regard to the service, in particular the cost of supplying electricity.
- e) Member States shall take appropriate measures to protect final customers and shall in particular ensure that vulnerable customers are adequately protected, including through measures to help them avoid disruption of electricity supply. In this context, Member States shall take measures to protect final customers in remote areas. They shall ensure a high level of consumer protection, in particular with regard to transparency of contractual terms and conditions, general information and dispute settlement mechanisms.
- f) The scope of regional regulatory collaboration and transparency should include the sharing of expertise, experience and information, cross-border commercial issues such as access to transmission capacity and cross-border transmission tariffs, regulatory aspects of coordinating system operations, and harmonization of market structures.

Article 51: Improving the visibility, transparency and coherence of the institutional and regulatory environment and setting up monitoring mechanisms

Member States should establish independent regulatory bodies that will take technical, not political, decisions to encourage investment and set conditions for participation in the electricity market, whether national or regional.

Regulators ensure that there is long-term consistency and stability in the regulatory framework.

In terms of regional cooperation, the regional regulatory body should channel the support of development agencies and support regional harmonization of support models for electricity market development.

ERERA should work to establish a regulatory framework to oversee market liberalization and facilitate investment in the region by encouraging countries to use a "level playing field" and promoting certainty for investors. The focus should be on energy trade, investment and financing, capacity building, and exchange of information and experience.

ERERA and the WAPP System must commit to developing appropriate frameworks to stimulate investment and growth.

Member States shall inform the WAPP System, when implementing this Code, of all measures they have taken to fulfil universal service and public service obligations, including consumer protection and environmental protection. They shall also inform the WAPP System of any effects of such measures on national and international competition, whether or not such measures require a derogation from this Code. Finally, they shall notify the WAPP System, on a regular basis, of any changes to these measures, whether or not they require a waiver of this Code.

Section 2: Supervision and audit of energy contracts

The management of the provision of Energy Services and related contracts is the responsibility of the Member States' contracting authority, their electricity regulatory authority and ERERA for cross-border transactions within the WAPP framework.

The audit of contracts for the provision of energy services should include a threefold oversight and control mechanism:

- On an annual basis, the private co-contractor must submit a report containing information allowing a comparison from one year to the next;
- At intervals not exceeding two years, as determined by the competent authorities of the Member States;
- Finally, and independently of these dedicated mechanisms, the Court of Auditors or the authority in charge of monitoring and controlling public accounts retains the right to conduct its own audit of energy service supply contracts.

Article 52: The annual report

The annual report that the private contractor is required to submit must include the following economic and accounting data:

- a) The income statement for the activity covered by the Energy Services contract, recalling the data presented in the previous year under the same heading and presenting the data used for the contractual revisions and indexations as well as the justifications for the external services invoiced to the operation;
- b) A presentation of the economic calculation methods and elements used to determine the income and expenses charged to the income statement, with, where applicable, a mention of exceptional changes in these calculation methods and elements during the year;
- c) If applicable, the proposed applicable rates for the upcoming calendar year calculated in accordance with the terms of the Energy Services Supply Agreement;
- d) A statement of changes in real property under the Energy Services contract and the depreciation schedule for such property;
- e) A statement of the status of other property and assets necessary for the operation of the facility, equipment or intangible property covered by the contract, compared with the schedules of depreciation and renewal of such property and assets, if any;
- f) A statement of other renewal expenditures made in the year under review;
- g) Commitments with financial implications related to the Energy Services contract and necessary for the continuity of the public service;
- h) The annual ratios of economic profitability and internal profitability of the operation of the facility or service provided as well as the breakdown between the cost of equity and the cost of debt related to the financing of the assets and activities covered by the Energy Services Contract.

The report should also provide indicators on:

- a) The performance objectives and/or technical, economic, commercial, environmental and social specifications, norms and standards assigned to the private contractor in the energy services contract;
- b) The proportion of the contract performance entrusted to small and medium-sized enterprises and to national or ECOWAS Member States' craftsmen;

- c) The follow-up of ancillary revenues collected by the private co-contractor in accordance with the energy services contract;
- d) The penalties imposed on the private co-contractor in accordance with the energy services contract and those paid by it.

The annual report allows the contracting authority, the authority in charge of regulating the electricity sector and any other competent monitoring body in the Member States to monitor the performance of the contract. It is therefore crucial that the penalties for late submission of the report or for providing partial information are dissuasive

Article 53: Periodic audits conducted by the contracting authorities, the regulatory authorities of the Member States and ERECA

All generation, transmission and distribution contracts must be subject to periodic audit by the contracting authorities of the Member States. For each energy contract and depending on its nature and importance, it is recommended that:

- a) The interval between two audits may not exceed two years;
- b) The expiry of an Energy Services contract or its interruption for any reason whatsoever must systematically give rise to an audit.

Every audit must be the subject of a written report with recommendations specifying the economic, financial, legal or other reasons on which they are based and indicating, where appropriate, possible avenues for improvement, particularly in terms of:

- a) Overall cost;
- b) Economic impact;
- c) Evaluation of performance objectives;
- d) Risk sharing between the contracting authority and the contractor;
- e) The desirability or otherwise of renegotiating the terms of the contract;
- f) Employment of SMEs and national or ECOWAS member country artisans;
- g) Transfer of technology and know-how to the contracting authority;
- h) Environmental protection, energy efficiency or sustainable development;
- i) Measures to prevent disputes that may arise between the contracting authority and the private co-contractor;
- j) Any measure aimed at the proper performance of the contractual obligations of the parties to the partnership contract.

Chapter II: Dispute Resolution

Section 1: Infringements and sanctions

Article 54: Infringements

Any violation of an obligation laid down in this code is considered an offence within the meaning of this code, including but not limited to

- a) carrying out activities in the electricity sector without authorisation;
- b) failure to comply with the standards and norms in force
- c) hindering the exercise of regulatory control missions by sworn agents.

Article 55: Sanctions

Member States shall define the offences and lay down the rules on penalties applicable to infringements of the provisions of this Code and shall take all necessary measures to ensure that they are applied.

The penalties provided for must be effective, proportionate and dissuasive.

Any dispute arising from the interpretation or implementation of the provisions of this Code shall be submitted to the regional conciliation body.

Section 2: Establishment of an effective, impartial, and transparent Dispute Resolution Mechanism - harmonization of principles and procedures

Many ECOWAS institutions are involved in the resolution of disputes between Member States and between Member States' contracting authorities and private operators providing energy services.

While the Court of Justice, the judicial organ of ECOWAS, is responsible for settling disputes between Member States as well as between the various community institutions, ERERA and WAPP have also established procedures for settling disputes between regional electricity market players and between WAPP members under their statutory text.

The dispute settlement mechanisms thus established shall apply only in cases where the parties to a contract for the supply of Energy Services within the meaning of this Code have not previously defined the conditions under which they agree to settle their dispute, with the exception of the Court

of Justice, which shall retain jurisdiction to hear disputes between Member States relating to the interpretation of ECOWAS texts.

Article 56: General provisions on the settlement of disputes

A Community institution, responsible for conducting the procedure for the settlement of disputes which may arise between the contracting authorities of the Member States and private operators under the terms of contracts for the supply of electrical services concluded between the latter, must be set up.

The settlement of disputes should be:

- a) Subjected to a mediation or conciliation procedure beforehand;
- b) Subject to arbitration.

The rules established by ARREC or an international body of recognised standing (e.g. ICC, London Court of International Arbitration, Stockholm Chamber of Commerce, CNDICI, OHADA etc.) must be followed.

The mechanisms for settling disputes between the parties must be the subject of a contractual clause allowing for the amicable resolution of disputes, providing for the possibility of calling on qualified conciliators or mediators to resolve technical, economic or financial problems. The procedure for appointing a joint expert to hear the dispute, the powers granted to him/her for its settlement and the enforceability of his/her decision should also be clearly established in the contract.

Provision should also be made for recourse to technical expertise from an independent expert.

Article 57: ECOWAS body in charge of dispute settlement

Notwithstanding the provisions of the WAPP Convention, the Regional Electricity Regulatory Authority, ERERA, shall be the sole authority competent to hear disputes that may arise between the parties to a contract for the provision of Energy Services within the meaning of this Code in the absence of specific contractual terms and conditions for the purpose of settling the dispute between the parties.

Article 58: Technical Expertise

Any disputes of a technical nature that may arise in connection with a contract for the provision of Energy Services, including differences of opinion regarding the determination of costs and delays, may be submitted by the more diligent party to a Technical Expertise.

The recommendations or conclusions of the appointed experts shall be enforced until the final settlement of the disputes or differences by arbitration or by any other means in accordance with the provisions of the Additional Act

Article 59: Arbitration

Any dispute or difference which could not be settled amicably between the parties shall be finally and exclusively settled in accordance with the rules of conciliation and arbitration as established by ERERA by three arbitrators appointed in accordance with these rules. The arbitration shall take place at [insert location]. The arbitration proceedings shall be conducted in the language [insert language].

Book 2

Technical Provisions & Rules Related to Electricity

Title I: Technical rules for the electricity industry

Chapter 1: Technical management of electrical networks

Section 1 - Balance, Control, System Stability and Operating Reserve Management

Preamble

This section draws on the EU interconnected system trading model, including the regulatory and technical provisions for cross-border trading and balance management and system stability adapted to the WAPP interconnected system context. (Example: the parts of the rules governing the Luxembourg and German control area, the regulatory provisions applied on the French and Swiss networks, the WAPP Operating Manual, the WAPP Revised Master Plan 2019-2033 etc.)

Article 60: WAPP Electricity Market Access Model

1. Delineation of the control area of the WAPP regional interconnected network

a. Setting the Adjustment Area

A Control Area, as defined by Guideline D1-paragraph 1.1 of the previous WAPP Operating Manual, is a coherent entity (generally coinciding with the territory of a company, country, or geographic area, physically delineated by the position of delivery points for the measurement of power and energy exchanged with the rest of the interconnected system), operated by a single System Operator, with loads and generation units capable of load following within the Settling Area.

b. Composition of the WAPP control areas

The development and efficient management of the regional electricity system in terms of balance, stability, security and reliability, open to a regional electricity market requires the subdivision of the region into control areas, the composition of which is determined by the WAPP according to criteria defined by it. Operator of setting areas

c. Setting area responsibilities

This is the operator of the control centre of a control area as defined and composed according to paragraphs 64.1 - a and 64.1. - b above.

2. Setting and stability

a. Primary setting

Primary control is based on the principle of joint actions to stabilize the system frequency at a stationary value, following an imbalance between demand and generation, and thus ensure the reliability of the system and its operation. This includes reserve dispatch and control actions between synchronous control areas. The primary control action (involving the primary control reserve) starts within a few seconds following a frequency change and takes full effect within 30 seconds.

b. Secondary Setting

Secondary control is a device that automatically reduces the Area Control Deviation (ACE) and helps (especially after the loss of a generating unit) to restore the frequency to its setpoint ($f = f_{cons}$) in order to replenish the primary reserve. The frequency and energy exchanges should start to return to their set values due to the secondary control (involving the secondary reserve) after 30 seconds, with the correction process ending within 20 minutes.

c. Tertiary setting

The tertiary setting allows to change the operating points of the units participating in the secondary setting and to economically distribute the power required in secondary setting to various units. The activation of the tertiary reserve should be possible at any time.

3. Distribution of operating reserves

The regional network code will define the operating reserves and how they are managed. In general, operating reserves shall be evenly distributed as far as possible across the network on operating units. Possible congestion in the transmission system shall be taken into account by the control area operator in the reserve calculation, in order to avoid a limitation in case of activation of the operating reserves.

4. Principles and technical rules of Transmission System Balance Management

a. Balance perimeter

The balance perimeter is a physical site of a contractual nature made up of injections from generation, imports or purchases from electric energy sellers, and extractions from consumers or intermediate electric energy sellers.

b. The balance managers

i. Role of the balance managers

- a) At any given moment, the quantity of electricity injected into the network must be equal to the quantity of electricity withdrawn. Subject to consumption or production contingencies (weather risks, availability of generating facilities, etc.), the balance between production and consumption is ensured in real time by the TSO, the public electricity transmission system operator.
- b) Electricity producers connected to the public transmission or distribution networks as well as electricity consumers are responsible for the discrepancies between the electricity injections and withdrawals they make. It is up to them to assume the costs as balance responsible. In fact, to maintain the balance between supply and demand, the TSO calls upon producers and consumers, in return for payment, to modify their planned operating schedule very quickly. This is the role of the balancing mechanism.

ii. Principles

Balance Responsible Entities are operators contractually committed to the TSO to finance the cost of discrepancies observed a posteriori between the electricity injected and the electricity consumed (injections < extractions) within a balance perimeter. On the other hand, in case of positive differences (injections > withdrawals), they receive financial compensation from the TSO. They can be electricity suppliers (national or foreign), consumers (site of a group, company designated by a group of companies) or any third party (bank, broker, etc.).

iii. Technical rules

System operators must develop, in consultation with the various stakeholders, technical rules and standard contracts. These rules and contracts must be available on the websites of the electricity distribution system operators (DSOs) and on the TSO website.

These rules govern the relations between the TSO, the DSOs and the Balance Responsible Entities. They define in particular the calculations used to reconstitute the energy flows per Balance Responsible Entity as well as the modalities of use of the profiles in this process.

These technical rules must be approved by the System Regulator.

iv. *The price of differences*

The price of differences is directly linked to the price of balancing offers requested by the TSO to maintain the balance of the power system. The principles for calculating the price of settlement of imbalances make it possible to send Balance Responsible Entities a financial incentive on their imbalances and reflect the cost of balancing actions carried out by the TSO to balance the national power system. The settlement prices of negative and positive imbalances are published on the TSO website.

v. *Calculation of differences*

The calculation of differences is based on a process of reconstituting the injection and withdrawal flows on the public transmission network and the public distribution networks. The TSO performs this calculation using its own data and data transmitted each week by the distribution system operators.

5. Technical structure of the WAPP interconnected network market

a. Regulatory framework

The physical infrastructure of the ECOWAS electricity market is built on a fully integrated network of 15 Member States pursuant to ECOWAS Decision A/DEC.5/12/99 of 10/12/1999 on the establishment of a West African Power Pool (WAPP) and regulated in accordance with Regulations C/REG.27 /12/07 of 15/12/2007 and C/REG.24/11/08 of 29/11/2008 on the composition, organization, powers, attributions and functioning of the ECOWAS Regional Electricity Regulatory Authority (ERERA).

b. Functioning

The control areas have few injections from generators. Most of the electricity must therefore be fed into the final WAPP interconnected grid from the major state grids, which are defined as such because of their great ability to impose frequency on the whole regional grid via cross-border lines.

c. Management of cross-border exchanges

- a) The energy exchanged at the border is measured on each end of the cross-border lines. The losses of the cross-border lines on the injection side are attributable to the corresponding Transmission System Operator, the energy exchanged at the virtual border point is calculated using the formulas developed by the System Operator and approved by ERERA.

- b) The distribution networks are supplied from the transmission network. However, they may receive additional injections from generation facilities.
- c) The transmission system operator may also be the system operator of one or more distribution systems.
- d) Each interconnection point between the transmission system and a distribution system that is not managed by the transmission system operator must be equipped with a metering installation that complies with the standards in force specified in MTC.11-Appendix A of the Regional Network Code.
- e) If the transmission system operator operates one or more distribution systems, all the systems operated by the transmission system operator are considered to be a single system from the point of view of the balancing zone system. The maintenance of metering facilities at the interconnections between the transmission system and the systems operated by the transmission system operator is therefore not necessary in this case.
- f) End customers and generators can be connected to the distribution networks or to the transmission network.
- g) Each supply point physically located in the transmission system must have a metering installation with a load curve (ACC) that complies with the standards in force.
- h) Each network operator, whether for a transmission system, a distribution system or a combined system, must maintain two virtual metering points to account for network losses and remaining incremental consumption.
- i) In order to cover energy losses, system operators shall procure energy according to transparent, non-discriminatory and market-based procedures, without prejudice to the use of electricity acquired by distribution system operators under contracts concluded and in force.
- j) Losses must be calculated and planned on the basis of a calculation model that accurately reproduces the behaviour of the loss load curve as a function of the physical flows occurring on the network. This load curve is assigned to the virtual loss metering point of the network. Each network operator is responsible for the accuracy of its calculation model.

6. Contractual structure for the balance perimeter system

a. Generalities

The contractual structure set out below ensures the proper functioning of the balance perimeter system. It is the responsibility of the parties responsible for drafting the various contracts to ensure

that they are compatible with the requirements of this Code and the Regional Market Rules laid down by the WAPP Regional Network Code.

b. Contractual structure

The contractual structure must include:

i. The Balance Contract

In order to define the responsibilities of the Balance Coordinator and the Balance Responsible Entities, a Balance Contract based on the regulations of this Code shall be concluded between the parties. Further details about this contract are given in Art. 82.3 below.

ii. The Convention for the exchange of data

In order to be able to draw up the balancing balances, the balance coordinator requires the transmission of metering data by the network operators. The form and frequency of data exchange may be set out in a data exchange agreement based on the regulations of this Code and to be concluded between the System Operators and the Balance Coordinator. In the absence of such an agreement, this Code defines the minimum requirements with which the balance coordinator and the system operators must comply.

iii. The Framework Contract

For a supplier or Balance Responsible Entity who is not a supplier.

iv. The Network Use Contract

For a supplier or Balance Responsible Entity who is not a supplier. It is the responsibility of the System Operators to ensure that any authorized supplier or Balance Responsible Entity wishing to supply end customers has a Framework Contract corresponding to its role and, where applicable, a Network Use Contract.

7. Principles of the Framework Contract

- a) The Framework Agreement is concluded between a System Operator and a supplier or possibly a Balance Responsible Entity.
- b) It defines the terms and conditions applicable to supplier changeover procedures and data exchange in the context of supplies to end customers within the network of the system operator.

- c) It also specifies the terms and conditions for the supply of SCC metering points based on synthetic profiles.
- d) The contract ensures that any applicant for a framework contract and the network operator have at all times all the information required to operate their respective balance perimeter(s).
- e) Before concluding a framework contract or a usage contract, the grid operators are obliged to check whether the applicant is among the balance responsible parties listed by the balance coordinator.
- f) In case of doubt, the system operators are obliged to consult with the balance coordinator.
- g) Any disadvantage incurred by a system operator as a result of authorizing supplies to end customers within its network without the respective balance responsible party having a framework agreement is the sole responsibility of the system operator.
- h) The Network Usage Contract is required for each supplier or possibly a Balance Responsible Entity wishing to offer integrated supply contracts to end customers. It is concluded between the network operator and the supplier and, where applicable, a balance responsible.
- i) System operators may opt to integrate the modalities of the network use contract into the master contract for differential balance.

Article 61: The WAPP balance perimeter system

1. Purpose of the balance perimeter system

a. Principle

Electrical energy cannot be stored in its original form. For this reason, a constant balance between the energy injected into the network and the energy withdrawn at the supply points must be maintained. Any imbalance between injections and withdrawals results in frequency variations that must be compensated in real time by the transmission network operators.

b. Predictive measures

In order to allow transmission system operators to plan their regulation reserve requirements, they must have short-term forecasts of the load on their system. These forecasts include, by control area and forecast period considered, the load curve of the total ¼-hourly power of the control area. For a given control area, these load forecasts are derived from the balance perimeter system.

c. Total load curve of the setting area

Within the framework of the balance perimeter system, the balance responsible parties are obliged to provide forecasts of the load of their balance perimeter(s) that are as accurate as possible and to transmit them in the form of a program to the balance coordinator, so that the latter can check the consistency of the program and determine the total forecast load curve of the control area.

d. Compensation for differences between actual consumption and the predicted load curve

Under the balance perimeter system, balance responsible entities are obliged to provide the most accurate load forecasts possible for their balance perimeter(s) and to transmit them in the form of a programme to the balance coordinator, so that the latter can check the consistency of the programmes and determine the total forecast load curve of the control area.

e. Reserve Power Contract

The TSO must conclude contracts with service providers or directly with producers in order to guarantee the provision of power and energy for primary, secondary and tertiary reserves.

f. Cost of providing reserve power

The costs associated with the provision of reserve power by generators are charged to the system services that must be provided by the TSO. These costs are taken into account when determining the tariffs for use of the transmission network.

g. Energy of balance

The energy contributed under the secondary and tertiary reserves is attributable to the active balancing perimeters within the control area. This energy, called balance energy, must first be invoiced to the balance coordinator by the TSO.

h. Adjustment energy

In order to distribute the balancing energy between the various balance responsible parties, the balance coordinator must allocate a share called "balancing energy" to each balance responsible party, in application of the mechanisms described in this Code. The balance coordinator re-invoices the balancing costs to the balance responsible parties in full and fairly when the balancing reports are established.

i. Inter-border balancing markets

In the absence of a national market for the supply of primary, secondary and tertiary reserves, the Transmission System Operator shall procure system services and balancing energy from service providers on the networks of neighbouring Member States or, failing that, from foreign markets whose networks have one or more physical links to the WAPP interconnected network and according to the most advantageous competitive economic criteria.

j. Mode of supply

The balance energy is physically transported from the network of the selected country.

2. Balance perimeters and balance responsibility

a. Responsibility for differences between actual and predicted fluxes

In addition to the definition set out in paragraph 62.4 - a above of this Code, the balance perimeter is defined as a virtual entity enabling the balance coordinator to account for the balance differences that may arise between the fluxes predicted in the forecast program and the actual fluxes.

b. Responsibility between injections and removal from a control area

- a) The Balance Responsible Entity is defined as a natural or legal person responsible for the balance of a set of injections and withdrawals in a control area.
- b) When a balance perimeter is managed by a Balance Responsible Entity who is not an authorized supplier under the regulatory provisions in force, the balance perimeter must either have a minimum annual consumption volume in MWh or include a minimum number of different supply points set by the Network Operator.

c. Injection and removal management

Any supply, including any injection and withdrawal of electricity, must be accounted for by means of a balance perimeter, which is to be established and managed by a balance manager.

d. Cooperation between setting areas

The rules of cooperation between control areas must be defined by the System Operator. These rules must define the technical procedures for energy exchanges between the control areas and the mechanisms for coding and identifying the balance perimeters, as well as the conditions for energy exchanges between them. In principle, energy exchanges can only take place between balance perimeters with the same energy identification code. Any Balance Responsible Entity wishing to

exchange energy at the virtual border point must therefore have a balance perimeter with the same energy identification code in the two control areas concerned. The rules of cooperation between control areas must be available on the website of the system operator.

e. Supply to end customers by the Balance Responsible Entity per balance zone

Apart from any additional contractual regulations required for this purpose between the balance responsible party and the system operators, the balance perimeter allows the balance responsible party to supply end customers in all networks in the relevant control area. In addition, it allows the exchange of energy with other balance perimeters within the same area.

f. Balance manager and balance coordinator

The balance responsibility for a balance perimeter is acquired by a Balance Responsible Entity as soon as the energy identification code of the balance perimeter is included in a balance contract concluded between the Balance Responsible Entity and the Balance Coordinator.

3. The balance contract

a. Supply contract and balance responsibility

The balance contract enables the balance responsible party to assume responsibility for the balance of one or more balance perimeters and to make possible the supply operations described in Article 61.2.

b. Conditions for the conclusion of a balance contract

- a) Any person who has a supply authorization granted by the System Operator or any Competent Authority, or who meets the conditions of Article 61.2 of this section, may request the conclusion of a balance contract from the balance coordinator.
- b) Any request for the conclusion of a balance contract from a Balance Responsible Entity must be addressed in writing to the balance coordinator.
- c) The balance coordinator is obliged to submit a balance contract to the requesting balance responsible party within a time limit set by regulation on the advice of the System Operator and the approval of the regulatory authority, calculated from the date of receipt of the request.
- d) In all cases, the balance contract duly signed by the requesting Balance Responsible Entity must be transmitted to the Balance Coordinator on a working day of month *m* within a period corresponding to the number of months prior to the operational start of

this balance perimeter on the 1st day of month m. The deadline in number of months following the working day of month m is set by regulation on the advice of the System Operator and approval of the Regulator.

- e) Any person who has a supply authorization granted by the System Operator or any Competent Authority or who meets the conditions required by this Code, and who has entered into or requested to enter into a balance contract, may request that the balance coordinator allocate to him the balance responsibility for a defined balance perimeter.
- f) Any request for the allocation of the balance responsibility of a balance perimeter must be addressed in written form to the balance coordinator by the balance responsible. The application for the allocation of balance responsibility and the application for the conclusion of a balance contract may be made at the same time.
- g) The Balance Responsible Entity must indicate in his request the Energy Identification Code that serves as the unique identifier of the balance perimeter for which he is requesting the allocation of balance responsibility.
- h) The balance perimeter for which the Balance Responsible Entity requests the allocation of balance responsibility must be entered in an appendix to the balance contract. The annex duly signed by the requesting balance responsible must be returned to the balance coordinator by the tenth working day of month m-2 for the balance perimeter to become operational on the first day of the month.
- i) A balance perimeter can group together several balance accounts of different suppliers. Each supplier must hold a supply authorization. The Balance Responsible Entity communicates the names of the suppliers to the Balance Coordinator through the transmission of a joint declaration. This declaration must be signed by the Balance Responsible Entity and, if the supplier and the Balance Responsible Entity are two different persons, by the associated supplier.
- j) Within a maximum of 15 working days from the date of receipt of the application for allocation in due form, the balance coordinator is obliged to submit to the requesting balance responsible party an appendix to the balance contract relating to the allocation of the balance responsibility of a balance perimeter.
- k) Apart from the bank guarantee required for the allocation of the balance responsibility, the procedures for the conclusion of a balance contract and the allocation of the balance responsibility are free of charge for the applicant.

- l) The balance coordinator is obliged to publish a list of balance responsible persons who have concluded a balance contract. This list must include the Energy Identification Codes of the balance perimeters of the various balance responsible parties.
- m) The balance coordinator shall publish any change to the list mentioned no later than the day on which the change takes effect.
- n) Before concluding a framework contract or a supplier usage contract, the grid operators are obliged to check whether the applicant is among the balance responsible entities listed by the balance coordinator. In case of doubt, the system operators are obliged to consult with the balance coordinator.

4. Identification of balance perimeters

- a) The balance perimeters are identified using a unique EIC (Energy Identification Code) valid throughout the ECOWAS electricity market and managed by the System Operator. This code is used as an identifier for all data exchange within the framework of the Programming process and the corresponding activity of a Balance Responsible Entity.
- b) Every Balance Responsible Entity must have a unique EIC code for each balance perimeter for which he is responsible.
- c) Failing this, the Balance Responsible Entity must request, in accordance with the System Operator's reference manual, the allocation of an EIC code from the competent national or regional bodies designated by regulation.
- d) The balance coordinator assumes the function of the local allocation office for the control area concerned.
- e) If there is any doubt about the good repute of the balancing manager, the local allocation office of the relevant regional control area shall be obliged to consult with the relevant regional authorities before it allocates an EIC code to reduce the risk of fraud.
- f) As soon as a new code is assigned, the local allocation office of the concerned control area shall publish a list of all issued EIC codes on its website.

5. Bank guarantees

If the regulations on network management provide otherwise, the following bank guarantee provisions shall apply:

- a) Every balance responsible party, with the exception of the supplier of last resort, must deposit a bank guarantee letter corresponding to the requirements listed below before acquiring balance responsibility for a given balance perimeter.
- b) System operators are exempted from submitting a bank letter of guarantee for the loss balance perimeter as well as for the differential balance perimeter, if all supply points in their network are supplied from aggregated balance perimeters.
- c) The bank letter of guarantee is intended to guarantee coverage of the costs incurred by the balance coordinator as a result of imbalances caused by the balance responsible party's balance perimeter(s) in the event of the latter's unwillingness or inability to pay the balance coordinator's invoices. The guarantee will be allocated as a priority to cover the costs caused to the coordinator by the failure of the balance responsible party, duly established in accordance with the rules determining the procedures describing the operation of the last resort supply and set by EREERA.
- d) The amount of the bank guarantee depends on the energy volume transited by a balance perimeter and is calculated according to a formula drawn up for a balance perimeter by the System and Market Operator and approved by EREERA.
- e) The basic fee is set at an annual amount per unit of GWh fixed by regulation.
- f) The basic fee is adopted in January of each year on the basis of the half-yearly average recorded on the first of December of the previous year, and calculated according to a methodology drawn up by the System and Market Operator and approved by EREERA.
- g) The minimum amount resulting from the application of the annual basic fee as well as the corresponding bank guarantee that must be deposited by the Balance Responsible Entity is determined by regulation.
- h) The bank guarantee letter can only be modified annually.
- i) The balance coordinator and the balance responsible are entitled to demand an adjustment of the amount of the bank guarantee letter if the guaranteed amount differs by more than 20% in absolute value from the amount determined on the basis of the basic flat rate and the energy volume of the past year.
- j) The letter of guarantee will only be returned by the balance coordinator in the following cases:
 - The balance responsible party has ceased its activities and has discharged all debts to the balance coordinator;

- A letter of bank guarantee replacing the letter in the hands of the balance coordinator has been received by the latter.
- k) A bank guarantee must be available to ensure the execution of the balance contract.
 - l) The letter of guarantee must be issued by a financial institute with its headquarters in an ECOWAS Member State.
 - m) The letter of guarantee represents a guarantee on first demand. In the event of recourse to the bank guarantee, the conditions of the letter of guarantee must specify that the bank waives its right to require the balance coordinator to claim the balance due to the balance responsible first.
 - n) In all cases where the balance responsible fails to meet its payment obligations, the bank must substitute itself for the balance responsible with regard to payment obligations, and this on the first demand of the balance coordinator. This unconditional substitution, irrevocable as principal debtor, obliges the bank to settle without delay, up to the maximum amount set out in the bank guarantee letter, the balance due by the balance responsible party to the balance coordinator. The letter of guarantee must include undertakings by the bank in relation to the above.
 - o) The scheduling system. In the event that the balance coordinator resorts to the bank guarantee, and if the terms of the bank guarantee letter deposited on behalf of a balance responsible party specify that the financial commitments of the balance responsible party's bank are to be reduced by any amount drawn from the bank guarantee, the balance responsible party shall be obliged to instruct his bank to provide the balance coordinator with a new bank guarantee letter for an amount equal to the previous one.

Article 62: The programming system

1. Generalities

a. Principles

A scheduling is a forecasted daily programme listing all the energy transactions of a balance perimeter with other balance perimeters per hour

b. Conceptual aspect of programming

The System and Market Operator (SMO) shall design a programming software in a scalable and upgradeable version. Each version shall be available on the OSM website for the use of the balance coordinator. The data formats must be described in detail in the documentation prepared by OSM.

c. Programming of exchanges and settlements between control zones

The programming of exchanges and settlements between control areas consists of:

- a) The determination of the maximum capacity of the interconnection lines between Control Areas on the basis of reliability criteria in order to ensure the security of operation of the WAPP system, as well as the Criteria for this Interchange Limit Calculation;
- b) The scheduling and implementation of exchanges between Control Areas performed during the operation preparation phase, which defines the day-ahead control schedule for the Control Area operator and aims at ensuring that cross-border exchange schedules are defined between all Control Areas;
- c) Real-time monitoring of cross-border transits between Control Areas during the network operation phase for the purpose of preventing disturbances in the system related to frequency-power control, given the importance of verifying the WAPP-wide consistency of the input data used by each Party for real-time operation; and
- d) Settlement of the fortuitous differences carried out the day after the operation, which consists of processing the fortuitous differences of each control zone for a recording period in order to follow up their compensation according to the modalities fixed by the market rules.

d. The prediction system

i. General dispositions

The Balance Coordinator shall apply the rules defined by a forecasting system designed by the SO and complying with the provisions of the WAPP System Code for the coordination of the balance in the relevant Control Area, which shall be based on the assessment of the feasibility of the system through adequacy, which consists in adapting the capacity of the interconnected power system to the satisfaction of the power and energy demand of the customers, while respecting the nominal

characteristics of the equipment and the voltage thresholds while taking into account the fortuitous and programmed unavailability of the system components.

ii. Procedures for the Prediction System

The procedures applicable to the forecasting system are specified in the Network Code. In general rules:

- The authorized message types are those defined in the current system version supported by the Balance Coordinator's forecast management systems.
- Any exchange of electrical energy between two balance perimeters as well as any exchange of electrical energy between control areas must be the subject of Programming transmitted to the balance coordinator by the balance responsible parties concerned.
- Programming concerning an energy exchange with a control zone outside the zone concerned is referred to as External Programming.
- Programming that is confined to a given control zone is referred to as Internal Programming.
- The balance coordinator is required to specify in the balance contract an e-mail address to which all messages relating to Programming must be sent by the balance responsible parties. He is required to inform the Balance Responsible Entities with a notice period not exceeding 5 working days before any change in the e-mail addresses used by the Balance Coordinator for the purpose of managing the Schedules takes effect.
- Balance Responsible Entities are required to inform the Balance Coordinator of the e-mail addresses they use to transmit Schedules.
- The Balance Responsible Entities shall notify the Balance Coordinator of their e-mail addresses in writing at least five (5) working days before the start of the transmission of Programming from these addresses.
- Any Programming sent from an e-mail address that has not been communicated to the Balance Coordinator may be refused by the Programming Management System.

2. Rules applicable to Programs

The Network Code specifies the rules applicable to scheduling.

Schedules (internal or external) must be submitted to the balance coordinator within a period of time set by regulation.

3. “Intraday “Programs

The Network Code specifies the applicable rules and procedures for Intraday scheduling according to their two-phase process, namely the Day Ahead Matching phase and the Intraday phase.

Article 63: Adjustment mechanisms

1. Balancing accounts

- a) Each balance perimeter is balanced based on the balance of four balance accounts, calculated monthly by the balance coordinator for each ¼-hour period of the previous month.
- b) The following balancing accounts are prepared by the balancing coordinator:
 - Injections based on the latest validated programming;
 - Actual injections;
 - Consumption on the basis of the latest validated Programming;
 - Actual consumption.
- c) The hourly values entered in the balance accounts are average powers measured or programmed per hourly integration period.

2. Accounting of physical flux and calculation of balancing energy

a. Basic principle

- a) The physical flux of energy is accounted for by the calculation of aggregated load curves by the network operators from the aggregated load curves relating to the active balance perimeters in their network to be transmitted to the balance coordinator and to the balance responsible parties according to the rules defined by the network code.
- b) An aggregated load curve is a load curve that represents the sum of the individual load curves of customers attached to a given balance perimeter. The accuracy of aggregated load curves is the sole responsibility of the Distribution Network Operator.
- c) Without prejudice to the requirements of the network code, the Transmission System Operator shall define:
 - the contribution rules for the aggregated load curves of the distribution system operators from the supply points on the basis of the synthetic profiles Without Load Curves (WLC) or With Hourly Load Curves (HLC);

- the contribution rules of the Balance Coordinator for the aggregation exchanges in collaboration with the system operators in terms of information exchange and identification mechanisms of the balance perimeter as well as the definition per balance perimeter and per network of the identification keys of the aggregation files per system operator.
- d) The mechanism for handling aggregation errors, imputations, and corrective actions.

b. Data management and balance of adjustment

i. General principle

Without prejudice to the regulatory provisions and procedures prescribed by the WAPP Network Code, data management and the balancing act are based on the following mechanism:

- a) The individual aggregations submitted by the network operators for each balance perimeter active in the respective network can be arranged in an aggregation matrix by the balance coordinator.
- b) The data arranged in the same column of the aggregation matrix all refer to the same distribution network, while the data arranged in the same row all refer to the same balance perimeter.
- c) The aggregation matrix is used to calculate a horizontal and a vertical aggregation.
- d) For a given balance perimeter, the actual physical ¼-hourly flows are calculated by the balance coordinator using the horizontal aggregation of values arranged in the aggregation matrix.
- e) Horizontal aggregation makes it possible to calculate the total physical load curve of a balancing perimeter balanced by aggregation, on the basis of the aggregations transmitted by the system operators.
- f) Vertical aggregation is used to determine, for a given distribution network, the sum of the supplies from the balancing perimeters active in this network.

ii. Practical dispositions

The mechanisms for processing the data transmitted by the Balance Coordinator to the Balance Responsible Entity, as well as the method of operating the aggregation matrices, controlling the balancing balances and drawing up the balance accounts, will be defined by regulation without prejudice to the provisions of the Network Code.

3. Billing of adjustment balances

a. Procedures

- a) The balance coordinator is required to carry out monthly billing for the balancing balances. Invoicing must be initiated as soon as the balancing energy prices are known by the balance coordinator.
- b) The bill must include all the information needed for the Balance Responsible Entity to check it. In particular, it must include identification of the perimeter concerned by the bill, the cumulative quantities/amounts of positive and negative balancing, and the supply period concerned by the bill.

b. Publication

For each monthly period for which balancing balances are billed, the balance coordinator is required to publish a table showing the price of balancing energy for each hourly interval of the billing period. The publication shall be carried out by the balance coordinator as soon as he has the required data.

4. Significant deviation from balance

- a) Balancing energy is intended solely for balancing imbalances caused by unavoidable and inherent inaccuracies in the forecasts made by the Balance Responsible Entities for their balance perimeter(s) and for covering the differential consumption of differential balance perimeters for which the Balance Responsible Entities are exempted from the Programming obligation in accordance with the provisions of the present Code.
- b) Any use of balancing energy for purposes other than those specified above, in particular to intentionally cover all or part of the consumption of a balance perimeter, is to be considered as abusive.
- c) The significant deviation from balance is determined by the balance coordinator on the basis of the following criteria:
 1. The monthly standard deviation of the balancing balance of a balancing perimeter is greater than the value resulting from the applicable formula for calculating the permissible standard deviations per balancing perimeter based on the annual energy volume of the balancing perimeter for two consecutive monthly balancing balances.

2. The annual standard deviation of the balancing balance of a balancing perimeter is greater than the value resulting from the formula applicable for calculating the admissible standard deviations per balancing perimeter as a function of the annual energy volume of the balancing perimeter for a complete annual exercise.
3. A balance perimeter that does not exchange any energy with end customers and generators, but only exchanges on the basis of Programming with other balance perimeters, cannot show an imbalance, the systematicity in the balancing balance is considered to be given, when the imbalances observed are repetitive.
4. If a Balance Responsible Entity fails, even once, to meet its Scheduling Obligation, then the imbalances must be compensated by the Balancing System by applying the formula for calculating the permissible standard deviations per balance perimeter provided by the SO and approved by the Regulator.
5. Significant deviation from balance may lead to the declaration of failure of a Balance Responsible Entity. In this case, the procedures determining the modalities of the last resort supply provided by the Regulator prevail and are applicable.
6. In all cases where the balance coordinator notices a significant deviation from the balance, the latter is obliged to first send a letter of formal notice to the balance responsible party concerned. The balance coordinator shall inform the regulator of any anomaly in the behaviour of the Schedules and of any significant deviation from the balance.
7. In any case, the coordinator has the right to penalize the misuse of balancing energy at the time of the balancing balances of the offending balance responsible parties, by limiting per ¼-hour period the reimbursements possibly due to the balance responsible party to the rates of the balancing energy price provided by the Regulator. The penalty shall be applied retroactively to the periods for which a significant deviation from balance was found.
8. The Balance Coordinator is authorized to use the bank guarantee deposited by the Balance Responsible Entity for the application of the penalties incurred by the Balance Responsible Entity following a significant deviation from the balance, if the latter refuses to pay the penalties billed by the Balance Coordinator up to the due date shown on the relevant bill of the Balance Coordinator.

Article 64: Litigations

Any claim by the parties shall be submitted to the Regulatory Authority which, acting as a litigation authority, may decide the dispute in accordance with the applicable law.

Article 65: Safeguard clause of the balance coordinator's will

Should one or more provisions of this Code become inapplicable as a result of changes in the independent market rules, the other provisions shall in no way be affected or called into question. In such a case, the balance coordinator is obliged to notify its proposed modifications to the SO, which shall, if necessary, proceed to a market consultation in accordance with the regulatory provisions in force.

Section 2 – General principles of network operation

Preamble

From a general perspective, the purpose of this document is to ensure that all interconnected power systems in the West African Power Pool (WAPP) operate the West African Interconnected System properly and efficiently, and that they participate equitably in the obligations and benefits resulting from the Interconnection. All WAPP Interconnected Power Companies shall comply with the contents of this document without prejudice to the provisions of the Regional Grid Code. This document is based on :

- The previous WAPP Operating Manual;
- Extracts from various documents relating to the technical rules of conduct of the applicable generation-transmission systems, in particular the African and European networks.

This document replaces the WAPP Operating Manual, in particular Guideline D5, which serves as its basis, modifies it or details parts of it as required as stipulated in the preamble of the Manual. It shall serve as a reference for all interconnected system actors to oversee the operation of the West African grid as well as for all users selling electricity as well as buyers or any other actor connected to the grid in accordance with the regional market rules relating to access and connection as defined in this Code, including:

- System Operator;
- The Transmission System Operator;
- The Information and Coordination Centre (ICC);

- The Generators;
- The Distributors;
- Final Customers connected to the Electricity Transmission System.

From a specific point of view, the objective of this document is to define the actions and interactions between the network operator and the users, in order to ensure an optimal operation of the network, an adequate and secure transport of electrical energy and a better security of supply.

This adequate and secure use of energy is achieved through :

- Adequate and cost-effective ancillary services;
- Frequency and operating reserve control;
- Voltage control;
- Black Start capability;
- The system operator's recovery strategy in the event of a partial or total power outage;
- The procedures of predictive management;
- The disposition of information on risks and events on the transmission system;
- The elaboration of actions to be taken by the network operator in order to achieve an economical "dispatch" and to provide users with the orders for the day;
- The definition of notification requirements for malfunctions and unavailability of generation units.

Sub-section 2.1 Conduct of the interconnected network

Article 66: Generalities

1. Concept of reliability and availability

Electricity systems have been designed to ensure:

- a) Reliability of the supply of electrical energy. The networks link all the production units and aim to ensure a back-up function in case of breakdowns and/or failures.
- b) Optimization of the availability of electrical energy to consumers, so the networks:
 - Enable the transmission of energy produced by delocalized sources to points of consumption;

- To ensure the routing of energy produced in mass at a defined location by machines connected to higher voltage levels to consumers generally scattered over a given territory and connected to lower voltage levels;
- Allow to create synergies between different production systems (hydraulic, solar and wind renewable but dependent on the availability of the primary source while thermal (conventional, geothermal and others) ensures the base and the relief of the previous ones), or even, in the long run, to take advantage of a coordinated management of time clusters, etc.

2. Power quality and market reliability conditions

Following the liberalization of the electricity sector by opening the grid to private operators, the grid also aims to play a role in facilitating the electricity market and ensuring that a maximum number of commercial transactions can be executed. In this context, the network must allow any transaction between different nodes of the network and across state borders. The objective is to allow any user to freely choose his electricity supplier and the type of production on the basis of his own criteria (price, quality of service, green electricity etc.)

Sub-section 2.2 – Dispositions related to the activities and personnel of Network Operations

Article 67: Exploitation function, mission and responsibility

1. Principal activities of the staff

a. Generalities

The continuous operation of the power system requires the control centre managers and operators to be on standby 24 hours a day, with at least one Team Leader, one System Control Manager and one System Control and Intraday Forecasting Manager at all times. The control manager or Chief Operator is responsible for operating the lines and transformers, and deploys on-call personnel when there are disturbances on the lines or in the coupling facilities. The Network Control Manager is in charge of the network controller, monitors the frequency and voltage and is responsible for the correct exchange of energy 24 hours a day.

b. Activities of the network control centres or Regional Dispatching

- a) The WAPP interconnected power system is operated by national and regional control centres or dispatching offices according to the control areas whose definition and composition are given respectively in Article 62.1.1 and 62-b.
- b) The regional dispatching of the WAPP interconnected network is responsible for the balance between generation and consumption, the control of the voltage plan and transits on the HV interconnection voltage network, the management of electricity exchanges between Member States at the borders through electrical interconnection lines (physical connection of electrical networks to each other or connecting lines, for energy exchanges);
- c) The WAPP control areas, through their national dispatching offices, are responsible for monitoring the 330,000 V interconnected network (or more depending on the evolution of the network) in support of the WAPP regional dispatching office, for controlling the voltage plan and transits on networks below 330,000 V, the values of which are indicated in the Regional Network Code, and for the remote control of high-voltage stations.

c. Activities in the setting zones of the regional interconnected network

- a) In each of the control zones from the corresponding dispatching centres: teams take turns 24 hours a day, 7 days a week, to ensure the production-consumption balance in the zone concerned, by supervising the state of the high-voltage network in real time. The dispatching teams order in real time the necessary manoeuvres to switch the electricity in an optimal way, whatever the situation they may be confronted with (incidents on the network, climatic hazards, etc.). The orders are either remotely controlled or transmitted by phone (secure lines) to the electrical transformer stations in all zones.
- b) In the event of network disturbances, the dispatching centres of the five control areas provide support to the WAPP regional dispatching centre to implement protective measures to maintain the integrity of the network and its normal operation, or to restore it as quickly as possible after a partial or total collapse.
- c) In the event of a large-scale incident, both automatic and manual actions are implemented to avoid a total collapse of the network (blackout) and facilitate the

reconstitution of the system. This involves exceptional control actions, such as the use of load shedding.

2. Exploitation manager

a. Definition

The Operations Manager is a person designated by the Plant Manager, and who has received a written delegation from the latter, in order to ensure the operation of a structure whose boundaries are perfectly defined, particularly during the execution of interventions on this structure

b. Mission

- a) The Operations Manager takes the necessary steps to operate the various materials, equipment, appliances, etc., of the work assigned to him. Within the framework of the various interventions on this work, he authorizes the putting under regime corresponding to these interventions and is in charge of taking or having taken the operating measures (including the withdrawal of the pipe from the work concerned) which will allow the delivery of these regimes.
- b) The Operations Manager may be authorized by the Plant Manager to transfer all or part of his prerogatives to another member of the operations staff. The transfer must be in writing or by a collated message exchange and must be unequivocal
- c) Withdrawals from driving are authorized by the Operations Manager. This agreement is formalized by his signature, handwritten or electronic, on the certificates of operation.

c. Responsibilities

With regard to the work for which he is responsible, the Operations Manager is responsible for:

- Risks related to the structure;
- Access to the structure;
- Activities carried out on the facility. Any facility, whether production or ancillary, must be placed under the responsibility of an Exploitation Manager. At any given time, there can only be one Operations Manager for a given facility and a given mission

Article 68: Authorisation

1. Definition

Authorisation is the employer's recognition of a worker's ability to perform safely, on a given structure and for a limited period of time, activities that present occupational risks for himself and his environment. Clearance is not linked to professional classification. It implies:

- a) That the authorised intervener, in addition to the professional knowledge acquired beforehand:
 - Has acquired the necessary training and skills related to the prevention of risks inherent to the execution of activities on the works and the means to prevent them,
 - Knows the works on which he/she has to intervene and is aware of the risks they present (scope of application);
 - Is aware of the responsibilities related to the authorization and accepts to assume them;
- b) That the employer provides the person concerned with a written document (clearance certificate) signed by the employer and the person being cleared. The employer may only authorize persons belonging to his company and after he has ensured that they are aware of the precautions to be taken to avoid accidents during the performance of the tasks entrusted to them and which result from the risk analysis.
- c) The issuing of a clearance by the employer does not necessarily remove the employer's responsibility.
- d) The employer shall hand over to any person authorised by him the collection of international technical requirements in this area, supplemented if necessary by special instructions and memos.
- e) External company employees must have sufficient knowledge of the works on which they are called upon to work to enable them to appreciate the risks they run in the course of their work. It is the responsibility of the Site Manager to provide this knowledge to enable the head of the contractor to issue the necessary authorisations to his workers.
- f) Each Member State adopts the enabling procedures according to the reference standards and its technical culture regarding the management of the network.

2. Domain of use

Appropriate authorisation is required to :

- Carry out and/or direct interventions, operating manoeuvres;
- Access without supervision to the premises reserved for electricians, at risk of explosive atmosphere;
- To ensure the function of Security Supervisor;
- To proceed to the start-up of the system.

3. Notifications

The employer defines the scope of application, which may be restricted. For electrical works, the corresponding international regulations in force.

Article 69: Training of exploitation personnel

Preamble

Without prejudice to the provisions of the WAPP Regional Network Code on Training (OpTC) and specifying : (i) the purpose and scope of the training process and regulating - (ii) the training programme on Power System Basics - (iii) the training programme on the said WAPP Network Code - (iv) - the training programme on Power System Operations - (v) the training programme on System Operator Operations and - (vi) the training programme on Long Term Planning, This section presents the regionally harmonised guidelines for the training of personnel involved in the operation of the WAPP interconnected system.

1. Implementation of the training program

- a) No later than eighteen (18) months after the entry into force of this Electricity Code, each TSO shall develop and adopt:
 - An initial training program for certification and an ongoing training program for its personnel responsible for the real-time operation of the transmission network;
 - A training program for its operations planning staff. Each TSO shall contribute to the development and adoption of training programs for the staff of the appropriate Regional Security Coordinators;
 - A training program for its balancing personnel.

- b) TSO training programs shall include knowledge of transmission system elements, transmission system operations, use of available real-world systems and processes, inter-TSO operations, market organization, recognition and handling of exceptional network operating situations, and operations scheduling activities and tools.
- c) TSO personnel responsible for real-time operation of the transmission system shall receive, as part of their initial training, training on interoperability issues between transmission networks based on real-life examples and feedback from joint training with the TSOs in accordance with procedures defined by regulation. This training on interoperability issues includes the preparation and activation of coordinated corrective actions for all network states.
- d) Each TSO shall include in its training program for personnel responsible for real-time operation of the transmission system, with an indication of the frequency of training, the following elements:
 - 1. A description of the transmission system elements;
 - 2. The operation of the transmission system in all system states, including reconstruction;
 - 3. The use of available systems and processes under actual conditions;
 - 4. The coordination of inter-TSO operations and market organization;
 - 5. Recognition and handling of exceptional operating situations;
 - 6. Relevant areas of electrical engineering;
 - 7. Relevant aspects of the regional internal electricity market;
 - 8. Relevant aspects of existing regional grid codes or guidelines;
 - 9. Safety of persons and safety of generation facilities and other equipment in the management of the transmission system;
 - 10. Inter-TRG cooperation and coordination in real-time operations and operations planning at the main control centres, training given in the official languages of ECOWAS Member States unless otherwise specified;
 - 11. Joint training with DSOs and Significant Network Users (SNUs) connected to the transmission system, as appropriate;
 - 12. Behavioural skills, with emphasis on stress management, human behaviour in critical situations, responsibility and motivation;

13. Operations planning practices and tools, including those used with regional safety coordinators for operations planning. The training program for operations planning personnel shall address at least the aspects referred to in 69.1. d) - 3), 4), 5), 6, 7) and 8)).
- e) The training program for balancing personnel shall address at least the aspects referred to in Article 69.1.1 - d) - 3), 7) and 8).
 - f) Each TSO shall keep records of the training programs attended by staff members during their period of employment. Upon request by the regulatory authority, each TSO shall provide the general framework and details of its training programs.
 - g) Each TSO shall review its training programmes at least once a year, or following significant changes to the network. Each TSO shall update its training programmes to take account of changes in operating conditions, market rules, network configuration and characteristics, in particular with respect to new technologies, changes in generation and consumption patterns and market developments.

2. Training coordinators and trainers

- a) The responsibilities of the training coordinator include designing, overseeing and updating training programs, and determining:
 - The qualifications and selection process for TSO personnel to be trained;
 - The training required for certification of System Operator personnel responsible for real-time operations;
 - Processes, including documentation, for initial and continuing training programs;
 - The process for certification of Network Manager's Real-Time Operations Personnel; and
 - The process for extending a period of training and certification for Network Manager personnel responsible for real-time operations.
- b) Each TSO determines the skills and competency level of field trainers. Real-time trainers shall have an appropriate level of operational experience following certification.
- c) Each TSO shall maintain a register of real time operating personnel who act as live trainers and shall review their ability to provide practical training before deciding on the extension of their certification validity.

Article 70: Certification of TSO personnel assigned to real-time exploitation

1. Qualification and certification criteria

- a) A person may become a member of the System Operator's real-time operations staff provided he is trained and then certified by a designated representative of the TSO for the duties involved within the time frame set forth in the training program. A System Operator staff member assigned to real-time operations shall not work unsupervised in the Control Centre if he is not certified.
- b) No later than eighteen months after the entry into force of this Regulation, each TSO shall define and implement a process, specifying the targeted level of competence, for the certification of the system operator's personnel assigned to real-time operations.
- c) TSO personnel assigned to real-time operations shall be certified through a formal assessment that includes an oral and/or written test, and/or a practical assessment according to predefined criteria.
- d) The TSO keeps a copy of the certificate issued and the results of the formal assessments. Upon request of the regulatory authority, the TSO shall provide a copy of the records of the certification tests.

2. Period of validity of the certification

- a) Each TSO shall record the period of validity of the certification issued to any personnel assigned to real-time operations.
- b) Each TSO shall determine the maximum period of validity of the certification, which shall not exceed five (5) years but which may be extended on the basis of criteria defined by each TSO and may take into account the participation of personnel assigned to real-time operations in a continuous training program and having sufficient practical experience.

Article 71: Definition and adequacy of the staff profile to the operational management of the WAPP grid network

1. Level of initial training

The constant demands and constraints of real-time network management require a training base that predisposes staff to good adaptability and judgement. It is therefore appropriate for personnel assigned to the management of the WAPP interconnected network to receive harmonised and

uniform initial training at the regional level. Operations managers should have at least, but not exhaustively the following skillset :

- Knowledge of electricity;
- Knowledge of electrical engineering;
- Knowledge of the electricity and energy trades..

2. Professional knowledge and skills

Operations managers should have at least, but not be limited to, the following qualities:

- Knowledge of HV, HV or LV electrical networks
- Knowledge of source station installations;
- Good knowledge of network operation and/or management;
- An excellent command of computer tools;
- Knowledge of automated systems;
- Knowledge of networks and industrial computing;
- Maintenance skills.

3. Personal qualities required

Operations managers must have the following personal qualities and cross-cutting skills, which are not exhaustive:

- A good capacity of adaptation;
- A good capacity of analysis / Spirit of synthesis
- A sense of autonomy
- A spirit of rigor
- A sense of organization
- Ability to listen;
- Good interpersonal skills
- A responsible character concerned with prevention and safety

Article 72: Ongoing staff training

1. Context

- a) For optimal operational coordination between the various transmission system operators, a level of sharing and exchange of quality information on a daily basis, but also to facilitate energy exchanges within the WAPP interconnected network, it is essential to have human resources with a high level of skills in line with developments in the electricity industry and in light of the ECOWAS Master Plan for the Development of Power Generation and Transmission Facilities 2019-2033 and the future, implemented by the WAPP.
- b) Adding capacity building modules for operating staff to priority regional projects is a priority because, combined with weak network codes, manual dispatching resulting in frequent and long outages, and training problems, the lack of available experts is another factor that can affect the proper functioning of a network and an electricity market. To address this, a number of areas of expertise need to be strengthened at the operator level.
- c) For its proper functioning, it is essential that the electrical system has experienced and qualified personnel who are familiar with the electrical networks and the operational procedures associated with their operation.

2. Implementation

Within the framework of the management of the WAPP power system, training must be part of an organizational process enabling all dispatching and planning operators and the personnel concerned to:

- Receive an initial training program to acquire the necessary basic knowledge and skills.
- Ensure that all dispatchers, managers and support engineers receive an appropriate ongoing training program designed by specialized institutions that meet the needs of the WAPP.
- That the personnel in charge of defining the operational rules and procedures follow this training program, each in their own field of intervention.
- That the operational procedures are adapted to the different tools used by the dispatching operators and engineers (SCADA systems, EMS / MMS functions, network simulator).
- That the said operators, managers and support engineers receive a complete training on the operational procedures.

Sub-section 2.3 - Dispositions relating to the Transmission Network Manager

Article 73: Generalities

1. Assignments

The Transmission Network Manager (TSO) is a natural or legal person who is responsible for the operation, maintenance and, if necessary, the development of the transmission network in a given area and, where applicable, its interconnections with other networks, and is in charge of:

- a) Ensure the long-term ability of the grid to meet the electricity transmission demands, in close cooperation with neighbouring DSOs and TSOs;
- b) Manage the secure operation of the network, which also includes maintaining the balance between electricity supply and demand.

2. Specific roles in the organization of the electricity market

- a) The Transmission Network Managers organizes a permanent dialogue with the different categories of network users and market players active on the electricity market, or their representatives, on specific problems related to the operation of the network and the functioning of the electricity market.
- b) Transmission Network Managers are not allowed to own, develop, manage or operate storage facilities under conditions comparable to those applicable to Distribution Network Managers (DSOs).

3. Specific roles in the technical and forecasting management of the network

- a) The Transmission Network Manager operates and maintains the public transmission network. It shall be responsible for its development in order to allow the connection of producers, consumers, storage facility operators, connection with the public distribution networks and interconnection with the networks of other Member States.
- b) To this end, every two years it draws up a ten-year grid development plan based on existing supply and demand and on reasonable medium-term assumptions for the evolution of electricity production, consumption and exchanges on cross-border grids. The scheme shall take into account, inter alia, the multi-year forecast balance sheet, the multi-year energy programming, the national energy and climate strategy and the regional policies of *ECOWAS*, *PERC-PEEC developed by CEREEC in accordance with Article 28, Paragraph 2 - c) of the Revised ECOWAS Treaty and Article 1 of the*

Supplementary Act A/SA.3/7/13, as well as the regional grid connection schemes for renewable energies referred to in this Electricity Code. It shall also take into account the potential for the use of load shedding, energy storage facilities or other resources likely to provide an alternative to network developments.

- c) The 10-year plan shall identify the main transmission infrastructures to be built or significantly modified within ten years, list the investments already decided upon and the new investments to be made within three years, and provide a timetable for all investment projects.
- d) The ten-year plan is submitted to the Electricity Regulatory Authority for review, which consults the users of the public network according to the procedures it determines. It shall make the summary of this consultation public. It shall verify whether the 10-year plan covers all investment needs and whether it is consistent with the WAPP regional plan relating to the ECOWAS Master Plan for Power Generation and Transmission 2019-2033 and any other related energy plan or policy.
- e) If there is any doubt about this consistency, the Regulatory Authority may require the Transmission Network Manager to modify the 10-year network development plan.
- f) The Ten-Year Network Development Plan shall also be transmitted to the WAPP Executive Council, which may make observations if it considers that the plan does not take into account the objectives of the energy policy.
- g) For the application of the 10-year plan, the WAPP Executive Board and the Transmission Network Manager shall establish an annual investment program, which it shall submit to the Regulatory Authority for prior approval.
- h) When, for reasons other than compelling reasons beyond its control, the Transmission Network managers fails to make an investment which, pursuant to the 10-year plan, should have been made within three years, the Regulatory Authority, without prejudice to recourse to the penalties provided for in the relevant laws and regulations, may, if the investment is still relevant in view of the current 10-year network development plan:
 - i) Give notice to the Transmission Network Manager to comply with this obligation;
 - i. Organize, after a period of three months following an unsuccessful formal notice, a call for tenders open to third-party investors.
 - ii. The Regulatory Authority shall draw up the specifications for the invitation to tender and shall designate the successful candidates. Its

decision designating the candidates shall be transmitted to the competent administrative authority for publication in the Official Gazette of the Member State concerned. The procedure for the call for tenders shall be specified by regulation.

- iii. Successful candidates enjoy the same rights and are subject to the same obligations as those of the Transmission Network Manager for the construction of electrical works. These are handed over to the Transmission Network Manager as soon as the work is completed.

Chapter II - Access and connection to networks

Section 1 – Technical Rules and Conditions of Connection and Use of the Transmission System

Article 74: Purpose

Without prejudice to the detailed provisions of the Regional Network Code in its sections on the Connection Code, the Technical Connection Rules specify:

- a) Technical standards for the design and operation of facilities with which users of the Transmission System must comply;
- b) Technical standards for the design of generation facilities with which generators connected to the Electricity Distribution System must comply;
- c) The normative performance of the Transmission System at the point of connection;
- d) The types of remote information to be made available to the System Operator by user.

Article 75: Scope of application

The technical rules of connection apply:

- To the System Operator;
- To the Transmission Network manager;
- To the Generators;
- To Distributors;
- To Final Customers connected or to be connected to the Electricity Transmission Network.

Section 2: Procedures for access and connection to the electricity transmission Network

Article 76: Procedures, conditions and documents for access and connection to the electricity transmission system

1. Procedures

The System Operator, as power flow manager, is responsible for connection studies to the Transmission Network. The connection studies concern:

- A proposed new connection;
- A modification of an existing connection.

For any connection to the Transmission network, the System Operator shall:

- Examining access and connection requests;
- Drawing up connection studies;
- Issuing authorizations for access to the electricity transmission network.

2. Technical requirements

Access to the network by the customer requires:

- The provision of information prior to the System Operator's review and approval, followed by the connection request;
- The provision of the connection study documents including the plans and technical specifications of the customer's facilities;
- Drawing up and signing the connection contract;
- Connection work;
- Provision for testing and acceptance of the facilities;
- Commissioning of the connected facilities and effective access to the network.

3. Technical reference document (TRD)

The connection processing procedure is developed by the network operator and included in the Technical Reference Documentation (TRD).

This document presents the connection applicant with the various stages of the connection process, from the preparation of the connection request file to access to the network following the connection operation. The technical specifications mentioned in the regulations and specified in the

technical reference documentation of the network managers indicate the technical requirements that the facilities must meet (capacity and operating procedures). Knowing and respecting these requirements is essential from the connection study phase

Title II: Common Provisions and Guidelines for Rural Electrification, Renewable Energy and Energy Efficiency

Chapter I - Rural Electrification

Section 1 - Access to energy in rural areas

Article 77: Commitment of Member States to the Goal of access to electricity for all

Member States commit to ensuring access to electricity for all in the electricity sector, with the contribution of the private sector and the development of national energy resources, including renewable energy. This commitment will be supported by increasing the share of renewable energy in the energy mix to a significant share defined in accordance with the targets set by ECOWAS

Article 78: Creation of a framework and measures to promote access to electricity

1. Institutional framework

Based on the above observation, ECOWAS Member States have decided to set up decentralized rural electrification agencies (REAs), each with a National Rural Electrification Plan (NREP) and a rural electrification fund (REF) to mobilize funds and take charge of electrification programs in rural and peri-urban areas.

2. Reinforcement measures for the viability of rural electrification projects

To ensure the viability and profitability of Rural Electrification projects and the interest of the private sector whose involvement is necessary to achieve the national and regional objectives of access for all, the Member States decide to:

- a) Strengthen the clear legal, regulatory, and institutional framework to secure investments.
- b) Put in place mechanisms for the development of plans through pilot projects aimed at stimulating a dynamic among both investors and beneficiary populations.
- c) Stimulate electricity consumption in rural and peri-urban areas through awareness raising, demonstration and showcasing the benefits by example.
- d) Develop capacity building programs with sufficient human resources and expertise in rural electrification.

- e) Promote the capacity and willingness to pay of citizens living in rural areas by integrating the rural electrification policy into a poverty reduction strategy through the involvement of NGOs and development assistance agencies.
- f) To be fully involved in the energy mix program in accordance with the PERC to achieve the targets set by the ECREEE by 2030.

Article 79: Electricity Access Strategy

The electricity access strategy is based, among others, on the SE4ALL (Sustainable Energy for All) Initiative launched by the UN Secretary General in September 2015 and taken up by Member States, where the development of rural electrification is considered a key socio-economic objective.

The objective is to ensure access to electricity for all in the electricity sub-sector, with the contribution of the private sector and the development of national energy resources, including renewable energy.

In order to overcome the shortcomings of the central grids in terms of reliability and security, Member States commit themselves to develop mini-grids and stand-alone renewable energy systems in rural and peri-urban areas at national and regional levels. The technical choice of the States is based primarily on:

- a) the densification and extension of the national grids: to this end, the contribution of mini-grids constitutes a step towards connection to the public grids and remains one of the solutions for the construction of an electricity market in the medium or long term.
- b) the promotion of off-grid decentralised generation, organised around decentralised mini-grids and off-grid technologies including individual solar kits (or family kits), which offer a cost-effective way of providing remote communities with electricity, and thus provide a solution to the scattered population in rural areas and the low income to subscribe to a more expensive centralised grid connection.
- c) In particular, Member States are adopting solar photovoltaic and wind technologies that are ideally suited to efforts towards distributed generation and rural electrification.

Section 2 - Incentive mechanisms for rural electrification projects

Article 80: Equipment Initiatives

Member States undertake to promote the initiative of local manufacturing of renewable energy equipment such as solar photovoltaic panels already initiated by some ECOWAS states which has the advantage of lowering project costs and increasing their viability accordingly.

Article 81: Grants - Tax and customs exemptions - Long-term loans

To further ensure the development of rural electrification, Member States undertake to put in place incentive mechanisms such as:

Rural Electrification Grants

- a) Exemption from customs and fiscal taxes or the granting of customs and fiscal advantages on equipment intended for rural electrification;
- b) The establishment of a mechanism for granting loans by banks with long maturities (>10 years);
- c) The institution and operationalization of cross-subsidies, where appropriate, between urban and rural areas or between stress levels.

Chapter II - Renewable Energy

Preamble

Under Article 28, Paragraph 2 (c) of the Revised ECOWAS Treaty and Article 1 of the Supplementary Act A/SA.3/7/13, the promotion of renewable energy shall contribute to access to sustainable energy services through the use of available national energy resources, including renewable energy, in particular by increasing a significant share of the energy mix.

The increase in the use of energy from renewable sources must also make a sustained contribution:

- To effectively meet the growing demand and security of energy supply in the region;
- To the widespread use of sustainable energy at affordable prices;
- Technological development and innovation;
- The development of technological and industrial excellence;
- The development of regional socio-economic activities, particularly in rural areas, isolated areas, regions or territories with low density: schools, health, small trade, crafts, drinking water supply, agricultural activities (irrigation), followed by the creation of important employment opportunities for young people and the integration of gender in access to energy;
- To respond to the CEREED's policy on renewable energy (EREP) and energy efficiency (EEEP).

Section 1 - Overview of the ECOWAS Renewable Energy Policy and Implementation Strategy

Article 82: Renewable energy policy

1. Renewable Energy Group according to ECREE

For the sake of clarity and legal certainty, the group of renewable energy sources considered in this section is the one accepted and adopted in the energy policy elaborated by ECREE, namely: solar (solar photovoltaic, solar thermal), small hydro, wind, biomass and geothermal..

2. Diversification of sources

Member States commit themselves in their energy policies to take measures to promote renewable energy sources and to increase their share in the energy mix in order to improve national energy

independence rates. To this end, the Governments undertake to promote all sources of renewable energy.

3. Initial objectives

The specific objectives set out in the ECOWAS Energy Policy document, specifically in the part concerning the electricity sector are:

a. For network connected renewable energies:

For grid-connected renewables, the targets may or may not include large hydro. These targets in terms of integration rates are set in the light of the global environment in terms of climate and energy considerations and according to the benefits to be gained from increasing the share of renewable energy in the electricity mix, the rate and timing of which are set by ECOWAS in its regional energy policy through the ECREE.

b. For decentralized solutions from renewable energies:

For decentralised renewable energy solutions, the objectives are to increase access to electricity for rural populations through decentralised renewable energy systems (e.g. mini grids). These objectives in terms of integration rates are set by ECOWAS in its regional energy policy through the ECREE.

c. The national policy for the development of renewable energies

The ministry in charge of electrical energy in each of the member states must ensure the follow-up of the national renewable energy development policy already developed and adopted by regulation. This involves the promotion of technologies for the development of local energy resources based on in-depth knowledge of the real potential for renewable energy and the existence of adequate human resources, while putting in place an institutional and regulatory governance environment conducive to the implementation of the said policy.

Section 2 - National plan for the production of electricity from renewable energy sources

Article 83: Implementation and monitoring of the national plan for the production of electricity from renewable energy sources

1. Follow-up actions to the National Plan at the Member State level

The Ministry in charge of electric power and the National Electricity Regulatory Authority of each of the Member States shall monitor the national plan for the production of electricity from renewable energy sources that has already been drawn up and put in place by regulation, with particular emphasis on:

- The national policy and strategy for the development and promotion of renewable energy to achieve national objectives;
- The national master plan for the development of the electricity sector;
- The power transit capacity of the national network.

2. Institutional support to Member States to achieve regional objectives

- a) The WAPP shall ensure the integration of the growing share of intermittent renewable energy in Member States, the continuation and increase of the level of interconnection and the realization of regional energy mix projects in Member States.
- b) In order to achieve the objectives set by the ECCSR for the region, the WAPP shall instruct Member States to take stock of the national renewable energy potential of the states at periods to be determined by regulation, and to assess the potential of the region in order to ensure that it is fully exploited for the benefit of the regional interconnected system.
- c) To enhance the viability of renewable energy projects, the ECREC should work towards the institution of an allocation of funds on the reduction of the cost of capital of projects, which has a significant impact on the size of these projects and their competitiveness, as well as on the development of essential infrastructure allowing for increased, technically feasible and economically viable use of renewable energy, such as the infrastructure of transmission and distribution networks, interconnections and smart grid.
- d) The ECREEE shall initiate a framework for the exchange of best practices among national or regional authorities or competent bodies, through the organization of regular and periodic forums, in order to create the conditions for a common approach to cost-

effective renewable energy projects. The periodicity of the forums organized by the ECCER shall be determined by regulation.

- e) The ECREEE shall continue and strengthen its active involvement with investors in the promotion of innovative renewable energy technologies and the definition of strategies for the progressive replacement of technologies that do not contribute to the reduction of greenhouse gas emissions.
- f) The ECREEE shall also promote technical cooperation and exchange of experiences in the field of industrial technology and design and undertake training and skills development programs in the field of renewable energy under Article 26 (i) of the revised ECOWAS Treaty.
- g) The ECREEE and the Member States should sensitize and educate the populations of the region on the practice and promotion of energy efficiency: practice of domestic electricity saving, practice of labelling for the orientation of the choices of users of low consumption electrical appliances, popularization of prepayment meters at the national level of the Member States.

Section 3 - The tax and customs regime and incentives for renewable energy

Article 84: Tax and customs system

- a) In order to make the projects bankable or financially balanced, each of the Member States shall grant subsidies, tax benefits or guarantees to companies, enterprises and establishments that undertake to produce or promote the production of electricity from renewable energy sources.
- b) The import, purchase or acquisition of materials and equipment intended for the production and operation of electricity from renewable energy sources, and those intended for research and development in the field of renewable energy, must also benefit from exemptions except for certain taxes (such as the road tax, the statistical tax and community levies). This measure is applicable to all distribution equipment and materials for the establishment of isolated networks, including the metering of off-grid electrification solutions, and must be included each year in the Finance Act.
- c) The nature of the incentives and the conditions under which the companies concerned will be able to benefit from them are determined by regulation on the joint proposal of the ministers responsible for finance and electrical energy respectively.

Article 85: : help and support for Renewable Energy projects

1. Diversification of funds in support of National Plans

In order to support the ambitious contributions of Member States to the region's goal, Member States commit to establishing a financial framework in support of the NREAPs, which already have a budget, to facilitate investments in renewable energy projects, including through the use of instruments and other financial products available from organizations such as Carbon Credits Development banks and other non-conventional financing channels available from BOAD, the World Bank or other external regional bodies for financing rural electrification, renewable energy and energy efficiency.

2. Other support mechanisms and green certificates in relation to market rules

- a) Member States are committed to adopting other support mechanisms for renewable energy sources at the national level, including green certificates, investment aid, tax refunds and direct price support schemes. However, aid granted by Member States must be provided in a form that does not impact the rules of the electricity market.
- b) Help granted to supplement market revenues must be linked to market-based systems in order to determine the level of aid needed. Ensuring the proper functioning of these support mechanisms in this Directive is the key to achieving regional targets for the integration of renewable energy sources and maintaining investor confidence.

3. Small self-consumption units

- a) Member States shall promote small-scale renewable energy production and self-consumption units managed on an individual or collective basis, which can largely ensure the uptake of renewable energy projects by the population. Member States shall apply incentive feed-in tariffs to ensure a positive cost-benefit ratio without prejudice to the rules of the electricity market.
- b) The Ministry in charge of energy and the Electricity Regulatory Authority of the Member States shall define the sizes of the said small-scale self-consumption units by regulation for the purpose of benefiting from the applicable state aid schemes, in order to ensure legal certainty for investors.

4. Competitive bidding to reduce the cost of assistance

Member States may use tendering procedures as an effective means of minimizing the overall cost of deployment for the system, thereby reducing the cost of support in competitive markets. Such tendering procedures shall define the relevant power thresholds by regulation and be open to all producers of electricity from renewable energy sources on a non-discriminatory basis.

5. Guarantee of proper functioning of the aid scheme with regard to investors

The support regime developed by each Member State at the national level must be in line with its renewable energy potential, which differs from State to State. The National Regulators must ensure the continuous monitoring of the effects and costs of the States' support scheme in order to guarantee its proper functioning and to allow them to maintain the confidence of investors, to define effective national measures within the framework of their respective contributions to the achievement of the region's objective and the national objectives.

6. Opening up support for cross-border participation

Member States may progressively open up support for renewable energy projects implemented in other Member States and define the framework for this progressive opening. However, the opening of support to cross-border participation, which has the advantage of reducing the cost of support, must be limited to Member States with a direct connection to the grid, which makes traceability possible and provides an indicator of the physical existence of the flow of electricity between the said Member States, without prejudice to the cross-border and inter-area functioning of the electricity markets.

7. Compatibility check and assessment of the aid in relation to the internal market

- a) ERERA tasks include assessing the compatibility with the internal market of support measures for renewable energies on a case-by-case basis; these derogations should be in line with the relevant power thresholds provided for and which are defined by State aid regulations.
- b) ECREEE and ERERA are the only bodies competent to assess respectively the coherence with PERC and PEEC, and the compatibility with the internal electricity market of the aids granted by the Member States to the promoters of electricity production units from renewable sources.

Chapter III - Energy Efficiency

Section 1- Energy Efficiency Policy

Article 86: Objectives

In the field of Energy Efficiency, the ECREEE through the PEEC has set the following objectives:

- Phase out inefficient incandescent light bulbs by the year 2020;
- Reduce losses in the electricity distribution network to less than 10% based on a projection of an initial deadline of 2020;
- Ensure universal access to safe, clean, affordable, efficient and sustainable cooking fuels for the entire ECOWAS population with a baseline target of 2030;
- Establish an ECOWAS Technical Committee on Standards and Labels and adopt the first regional standards and labels for major energy equipment;
- Create regional efficiency standards for buildings (e.g., building and housing codes);
- Create sustainable energy financing instruments, including carbon finance, by the initial deadline of 2013 and, in the long term, establish a regional fund for the development and implementation of sustainable energy projects.

Article 87: Implementation

1. Principle

Improving energy efficiency often presents the most cost-effective solutions to the access challenge, offering a less expensive alternative to building new generation capacity. This is because it is a matter of matching useful capacity to necessary energy needs. This optimization and balancing approach is seen as saving money by avoiding potential additional investment costs.

2. Domain of application

In order to adapt to current practice in more technologically advanced regions, energy efficiency must address the residential and tertiary sectors, as well as industries, with the aim of reducing electricity consumption. The use of new information and communication technology (NICT) tools and other technological innovations in building construction or rehabilitation projects should make it possible to combine architectural quality with improvements in the energy performance of buildings.

3. Strategy and resources

- a) To ensure the real energy performance of buildings and industries, the Member States decide to direct the companies of both sectors to actions aiming at stimulating the awareness and the adhesion of all the actors to the technological innovations: households, architects and building professionals must be brought to cooperate effectively in collectives of project management.
- b) The ECREEE must define new orientations of the Member States in learning and continuous training, research and development in innovative technologies, the development of partnerships with higher education institutions and specialized professional training centres.

Section 2 - Technical tools for diagnosis, monitoring, and evaluation of energy performance - Application to the context of ECOWAS Member States

Article 88: Typology of technical tools

ECOWAS Member States shall adopt the use of technical procedures and tools for decision support in use in large metropolises in anticipation of the ongoing accelerated development and modernisation of large urban areas. These tools make it possible to improve energy performance in the context of greenhouse gas reduction objectives, energy management and access to electricity for all. Three of these tools already tested in the more technologically advanced regions are:

- The Energy Performance Diagnosis (DPE);
- The Energy Audit;
- Technical Management Systems for Buildings (BMS).

Article 89: The Diagnostic of Energy Performance (DPE)

1. Concept

The DPE is a document produced from a technical diagnosis carried out for a building and which gives an estimate of energy consumption and greenhouse gas emission rates. It is a component of the technical diagnosis file (DDT) of the building and is required and given to the purchaser or lessor of the building.

2. Objectives

The DPE allows to have a thermal state of the habitat thanks to an energy label (classification from A to G) and a climate label (quantity of greenhouse gases). It also makes it possible to make recommendations in terms of energy saving actions to be taken.

3. Uses

The DPE is limited to heating, domestic hot water production, cooling, and ventilation equipment and for each category of equipment. The DPE describes the conditions of their use and management that affect energy consumption and gives an indication of the annual amount of energy consumed or estimated for each category of equipment and an assessment of these annual consumption expenses with the label "energy" and the label "climate" of the building.

4. Application to energy efficiency solutions

Member States decide to apply active energy efficiency solutions in buildings by establishing:

- The mandatory Energy Performance Diagnosis (DPE) for all residential or industrial buildings, existing or under construction;
- Transparent billing of energy, tracking of waste, control of consumption via the electrical panel communicating (smart meter);
- The mandatory display in real estate ads for rentals;
- The energy label that indicates the energy consumption and climate that indicates the impact of greenhouse gas emissions for buildings diagnosed. The energy and climate labels will be adapted to the ECOWAS context by regulation.

5. Criteria of competence and guarantee:

Member States shall make every effort to train the human resources necessary for energy performance diagnostics to ensure that certified, independent, competent, and insured personnel.

6. Periodicity and validity

The institution of the DPE, in the medium or long-term depending on the level of economic and industrial development of the Member States, its periodicity and validity will be fixed by regulation without exceeding a period of 5 years for the periodicity and 10 years for the validity.

Article 90: The Energy Audit

1. Concept

The Energy Audit is a procedure that allows to collect all the data about the thermal functioning of the building: its consumption as well as its use of energy and to make a detailed evaluation of the energy performances of the building and to specify the sources of loss, if there are any. Then, it consists in:

- Establishment of a detailed performance and energy consumption report of all electrical equipment;
- The analysis of the points of loss and other sources that require optimization;
- Issuance of technical and financial recommendations for energy saving programs and prioritization according to their complexity.

2. Objective

The objectives of the energy audit are to improve performance and to reduce losses by means of personalized solutions adapted to the situation. The complete analysis of these data allows to determine in a quantified way, the loads and the costs in energy, but also the potential gain to be realized. In addition to avoiding overconsumption of energy, the energy audit could also allow to obtain certain aids and subsidies (e.g.: the eco-loan at zero rate for the financing of renovation works).

3. Uses

As the mandatory energy audit is a comprehensive process, it covers all sources of failure such as heating, domestic consumption, ventilation, lighting, air conditioning, etc.

4. Criteria and obligations

- a) Apart from those with an ISO 50001 certification already qualified in terms of energy efficiency improvement, companies are obliged to carry out an energy audit. The criteria for these obligations are defined by size in terms of number of employees, turnover and annual balance sheet and are set by regulation.
- b) In addition to the companies meeting the above criteria, certain condominiums used as homes and equipped with a collective heating system must also meet this obligation. Their size in terms of number of main lots and annexes are fixed by regulation.

5. Periodicity and validity

For large companies in the tertiary and industrial sectors, the energy audit must be compulsory and its renewal frequency must be set by regulation without exceeding 4 years.

Article 91: Building Management Systems (BMS)

1. Concept

Building Management Systems (BMS) consist of the networking of all the electrical installations of a building. They are intelligent devices for supervising and controlling services such as heating, ventilation and air conditioning, while ensuring that they operate in the most efficient and economical way.

2. Objective

BMS systems allow to optimize the balance between environmental conditions, energy uses and operational needs and are suitable for both simple and complex installations. They have the capacity to optimize the functioning of technical installations by automating the operation of electrical equipment, controlling and monitoring remote devices, optimizing energy consumption.

3. Utilisations

- a) In domestic use, BMS systems are applied to ventilation, cooling and heating systems that require the intelligence of these systems to facilitate the control and maintenance of the installations;
- b) These systems are also used in industrial and tertiary home automation; in industry, they allow to reduce losses due to the oversizing of electric motors which constitute the most energy consuming equipment.

4. Upgrading skills in Renewable Energy and Energy Efficiency

The Member States decide to adopt the ECD, the Energy Audit and the BMS and to design a training program for experts to be elaborated by the ECREEE and to be included in a global framework of training in renewable energy and energy efficiency.

Section 3 – Intelligent Networks (IN)

Article 92: Deployment of Intelligent Networks (IN)

1. Concept

Smart home networks associated with smart meters and home automation are technologies that use the fields of electronics, telecommunications and automation to control the operation of electrical systems.

2. Architecture

The intelligence network architecture is composed of three levels :

- 1) Classic infrastructure of electrical works (lines, transformers, etc.);
- 2) Communication media and technologies (optical fibre, PLC, GPRS, 4/5G etc.);
- 3) Applications and services, such as remote troubleshooting systems or automatic power demand response programs using real-time information.

3. Technical applicability of Smart Grids in the ECOWAS context

The ECOWAS regional interconnected grid and the national grids are not yet installed or are embryonic. The smart grid could allow for a direct transition to efficient solutions, especially since the region is rich in wind, water and/or photovoltaic resources (i.e. the Sahel) where the smart grid could reduce outage times, improve supply and facilitate the use of clean, safe and renewable energy.

4. Application to energy efficiency solutions

ECOWAS Member States commit themselves to developing the use of Smart Grid technology to optimise the production, distribution, consumption and possibly storage of energy in order to better coordinate all the links in the electricity network, from the producer to the final consumer. ECOWAS Member States intend to take advantage of the benefits offered by smart grids to improve overall energy efficiency, reduce line losses by optimising the output of the production means used, in relation to instantaneous consumption, by reducing consumption peaks and mitigating the risks of generalized breakdowns, thus improving the operation of the networks. Finally, smart grids will make it possible to limit the environmental impact of electricity production by reducing losses and better integrating Renewable Energies

Title III: Technical Standards and Norms

Chapter I - Generalities

Section 1 – General context of the Regional Interconnected Network

Article 93: Purpose

In the context of the WAPP interconnected network open to the electricity market, the harmonization of technical standards for both design and operation is a condition for guaranteeing compatibility, adaptability, interoperability and interchangeability between different systems made up of equipment of different origins that are called upon to operate together within the same network. The application of the standards must also guarantee the physical and operational safety of people and installations.

Article 94: Obligation to notify and specify standards

- a) To ensure the technical quality and proper functioning of the interconnected power system facilities, it is mandatory for any national or regional ECOWAS project to proceed with the systematic and rigorous notification and specification of the international standards in force.
- b) The certification requirements shall be in accordance with the technical specifications. This provision shall be aimed at avoiding the receipt of counterfeit equipment or unproven technologies, hidden defects of pirated equipment, etc.
- c) The technical characteristics of the material and equipment are subject to prior verification of compliance with the norms and standards of the Regulatory Authority.

Article 95: Fields of application

The constructive and operational technical norms are specified in accordance with the standards defined by the Regional Network Code and applicable to the facilities of the different categories of network actors, each with respect to its own scope, and which are:

- a) The System Operators;
- b) The Network Managers of the Transmission Network;
- c) The Distribution Network Managers;
- d) The Producers;

- e) The eligible customers;
- f) Consumers.

Article 96: Obligation to notify and specify standards

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- b) The certification requirements shall be in accordance with the technical specifications. This provision shall be aimed at avoiding the receipt of counterfeit equipment or unproven technologies, hidden defects of pirated equipment, etc.
- c) The technical characteristics of the material and equipment shall be subject to prior verification of compliance with the norms and standards of the Regulatory Authority.

Section 2 - Requirements

Article 97: Design and operational requirements

1. Compliance with international standards

In the case of electrical networks, they must be built in accordance with the environmental and social conditions of the Equator Principles, operated in accordance with current international technical standards (IEC, ISO, UTE, AFNOR, EN, and equivalents), and at a minimum, in accordance with internationally recognized standards such as OHSAS 18001 (*Occupational Health and Safety Assessment Series: Health and Safety at Work*) or ILO-OSH 2001 (International Labour Organization - Occupation Safety and Health): International Labour Organization - Occupational Safety and Health.

2. Requirement for certification of equivalence of standards

Any standard or principle of design or operation other than those indicated above and declared equivalent must be the subject of equivalence certification approved by the Regional Regulatory Authority (ERERA), or national, in their capacity as competent bodies having the task of attesting to compliance with the said standards and ensuring compliance with the technical regulatory provisions.

3. Requirement to upgrade facilities in case of non-compliance with standards

- a) When facilities do not comply with specified technical or environmental standards, there is an obligation to comply with them either within a reasonably short period of time for simple systems, or progressively for complex systems.
- b) The technical upgrading of the facilities consists of the standard progressive replacement of the apparatus or equipment in one case, or requiring well-targeted actions to mitigate the environmental and/or social impacts in the other. In the event that it is impossible for the facilities to technically comply with the prescribed norms and standards related to the connection rules defined in this Code, they may not be authorized to be connected to the regional interconnected network.

4. Compliance check

- a) The design plans and all documents relating to generation, transmission and distribution facilities, communication systems, control and protection systems, information and telecommunication systems, must comply with the technical requirements defined by the WAPP Regional Network Code.
- b) These plans and documents are subject to prior verification by the National Regulatory Authority or approved by EREERA depending on their impact on the operation of the interconnected system.

Chapter II - Network Systems Standards

Section 1 - Norms and standards for telecommunication systems

Article 98: Field of application

The scope of the communication systems norms and standards includes power line telecommunications equipment, power evacuation systems, and WAPP Information and Coordination Centre (ICC) telecommunications systems.

Article 99: Technical specifications of telecommunication systems

The minimum technical specifications for the telecommunications systems are:

- a) The IEC recommendations on:
 - The tank circuit (60 353);
 - Coupling capacitors and capacitive dividers (60 358);
 - Coupling groups for power line carrier systems (60 481);
 - Recommended values for input and output characteristics of single sideband power line carrier equipment (60 495);
 - The design of power line carrier systems (60 663);
- b) CCITT (International Telegraph and Telephone Consultative Committee) recommendations for telecommunications systems;
- c) CCIR (International Radio Consultative Committee) recommendations for radio systems;
- d) TCP/IP (Transmission Control Protocol/Internet Protocol) for the WAN (Wide Area Network);
- e) ICCP (Inter-Control Centre Communication Protocol or IEC 60 870-6/TASE.2 standard) for harmonized communication between Control Centres;
- f) IEC (International Electrotechnical Commission) standards for real-time remote control information exchange;
- g) FTP (File Transfer Protocol) for time-shifted services such as file or program exchange, network model, planning data or statistics;
- h) SMTP (Simple Mail Transfer Protocol) for transferring e-mail to e-mail servers for special applications.

Section 2 - Norms and standards of Control, Command, Protection, Communication SCADA and measurement systems

Article 100: Control, Command and Protection System (CCPS)

1. Field of application

It concerns the equipment of the Post Control Centres, the Information and Coordination Centres of the WAPP.

2. Minimum requirements for CCPS

- a) The control and supervision system shall integrate all signalling (alarm, status logging), measurement, protection, control and regulation functions.
- b) All the equipment of the WAPP control centres as well as the substation equipment (source and distribution), the equipment intended for telemetry, remote signalling and remote control must be equipped with the latest generation of digital Control, Command and Protection systems. In particular, they must be equipped with open interfaces to the SCADA supervision and data acquisition system with functionalities specific to the control centres of large interconnected networks.
- c) The line circuit breakers must be able to be controlled locally and remotely from the control rooms of the dispatching stations and lifting stations, with well-defined hierarchical levels and with the possibility of interlocking between the two stations for the control of the whole from the control rooms of the Production Units and/or dispatching stations.
- d) Communication protocols shall be in accordance with IEC 61 850 and may not be tied to a closed system. The CCPS shall be designed to meet the reliability, availability and security requirements to ensure:
 - Correct and trouble-free operation;
 - Proper operation of control and/or IED (Intelligent Electronic Device) protection bays with position indication of all circuit breakers, disconnect switches and grounding switches;
 - All alarms and indicators associated with remote protection, activation and tripping; All equipment elements for control, supervision, remote control and interlock circuits;
 - Communication links with remote control centres via standard protocol;

- Protection and remote control management;
- Event recording;
- Disturbance analysis.

Article 101: Supervisory Control and Data Acquisition System - SCADA

1. The SCADA function

It is provided according to the components of the IEC 61 850 global protocol, which is a set of protocols and specifications that allow various devices in an electrical network to communicate. It can operate on Ethernet TCP/IP (Transmission, Control Protocol/ Internet Protocol) networks and supports fast GOOSE / GSSE (Generic Object Oriented Substation Event/ Generic Substation Events) messages that can guarantee sub-millisecond response times unlike the DNP3 (Distributed Network Protocol) automation protocol. In addition to GOOSE messages, IEC 61850 also supports Manufacturing Message Specification (MMS) and eXtensible Markup Language (XML) messages.

2. Conceptual disposition

The SCADA system shall be designed as a decentralized loop with full redundancy in the equipment based on fibre optic connection of all alarm, signalling, recording, communication, equipment status or position and interlock functions.

3. Implementation of IEC 61 850

- IEC 61850 compliant Ethernet switches
- Firewall and VPN (Virtual Private Network) for cyber security
- Remote I/O modules
- RTU (Remote Terminal Unit)
- Control PC

4. Benefits of the IEC 61850 global protocol

The IEC 61850 global protocol:

- It ensures interoperability between equipment from different manufacturers. In case of failure detection, all analogue and digital signals with time stamps can be recovered for further analysis with specific software. Each intelligent electronic device has an IP address, through which it is possible to carry out remote parameterization and reprogramming.

- It allows enormous savings in wiring. By using Ethernet cables for transmission, electromagnetic disturbances are reduced.

5. Specific area of application of the IEC 61 850 Protocol

It is the specific communication standard used by substation protection systems in the power generation sector between the intelligent electronic devices located at the distribution substations of a power system. Intelligent electronic devices, also known as IEDs, are essentially composed of microprocessor-based protection relays, measuring devices, programmable logic controllers, fault, and event recorders, etc. They allow real-time monitoring of the power system and its operation. They allow real-time monitoring of the power system and constitute the "*intelligence*" of the substation. For example, thanks to the IEC 61 850 standard, it will be possible to read the power, voltage, energy, frequency, etc., of a series of devices in power plants or substations.

Article 102: Measurement systems and time reference

1. Units of measurement

- a) In accordance with the international convention and technical regulations, all units shall be expressed in the International System of Units (SI) adopted by the General Conference on Weights and Measures (CGMP) in 1960 and based on the Metre - Kilogram - Second - Ampere (MKSA) system.
- b) It is necessary to adopt and harmonize the principle of systematic and precise indication of units of measurement in the acquisition of equipment and the implementation of facilities of the WAPP interconnected networks to avoid possible distortions in the design or layout of equipment that could be sources of malfunction or hazards in the operation of the network.

2. Time reference

a. Domain of application

Time is an important parameter in the management of the interconnected network. The operators of the WAPP interconnected network control centres are called upon to manage operations, events, information, communications, statistical data, recording of events, analysis of disturbances, at the same times, in a precise and consistent manner, by each of the operators concerning their control area. The time reference commonly used in the operational technical management of control centres is Universal Time (UT). It must be harmonized in the management of the WAPP interconnected

network. For this purpose, the WAPP remote control centres must be equipped with the GPS system.

b. Implementation

For the need of common time, process coordination, the remote control centres of the interconnected networks must be equipped with the time synchronization device consisting of precision electronic clocks and GPS synchronization device and must be integrated into the redundant SCADA architecture with the following main minimum features:

- Two (02) time servers with NTP (Network Time Protocol) compliant software;
- Two (02) Windows servers;
- Two (02) redundant ports;
- Two (02) fibre optic loops;
- Two (02) connections to the Gateway;
- One (01) motherboard;
- One (01) HMI card;
- One (01) RJ45 connection;
- 04 Switches ;
- One (01) CPU (Central Processing Unit);
- One (01) Ethernet connection;
- Two (02) GPS + Two (02) active external antennas;
- Wall clocks.

Section 3 – Smart network norms and standards

Article 103: Generalities

- a) In addition to increasing the reliability, resiliency and efficiency of the electrical grid, smart grid technologies will improve environmental performance by allowing consumers to be more actively involved in decisions related to their energy use and by facilitating the integration of renewable resources, such as wind and solar power.
- b) As these technologies take shape and find a place in the market, their standardization will become the solution to developing a smart, efficient and effective grid. Consequently, to avoid the risk of encountering incompatibility or obsolescence of its equipment, the ECOWAS regional electricity system must adapt to the technological

evolution underway, by appropriating best practices in the development of Smart Grid standards, particularly from North American countries such as Canada and the United States, which are more advanced in this area.

- c) A reliable system must also be secure, which requires rigorous standards and operating protocols. However, despite the relatively rapid deployment of Smart Grid technology, many of the related standards are not yet sufficiently developed to be incorporated into regulations. However, ECOWAS member states need to align with ongoing Smart Grid research and development while continuously and steadily adapting grid equipment to the ongoing technological evolution.

Article 104: Status of implementation

At this stage of deployment, the IEC 61850 standard is increasingly used as the basis for intelligent networks, with regard to:

1. Integration of distributed energy resources (IEC 61850-7-420);
2. Arterial automation and advanced distribution management systems;
3. Integration of active electricity consumers, such as homes, buildings or industrial facilities.
4. IEC 61850-7-4XX series, which will target advanced distribution automation. IEC 61850-90-6, will list the advanced distribution applications to be addressed in IEC 61 850. The targeted smart grid applications are :
 - Demand response;
 - Voltage/reactive energy management;
 - Detection, localization and correction of faults;
 - Reconfiguration of feeders;
 - Control of distributed generation units.
5. Web services: the IEC 61850-8-2 intelligent network standard will have the following features:
 - Communication stacks using open source software;
 - A low hardware resource implementation that can be integrated into small devices;
 - Standard LAN/WAN capabilities;
 - Easy Common Information Model (CIM) implementation and interoperability;
 - Built-in cyber security capabilities, and firewall or security policy compatibility;
 - Connectivity to millions of communications devices that already support these mechanisms.

Title IV: Final dispositions

Article 105: ERERA and WAPP actions

The ERERA and the WAPP are responsible, each to the extent that it is concerned, for taking all necessary measures for the effective implementation of these directives.

Article 106: Deposit of instruments

This Directive shall be deposited with the ECOWAS Energy and Mining Commission, which shall transmit certified copies to all Member States and to any organization designated by ECOWAS.

Article 107: : Entry into force

These guidelines, which shall enter into force upon signature, shall be published by ECOWAS in the Official Journal of the Community within thirty (30) days of its publication. It shall also be published by each Member State in its Official Journal within the same period as above, after the Commission has notified it.

ANNEX A

Directive on the harmonisation of contractual provisions relating to Power Purchase Agreements (PPA)

Preamble

Having regard to the Additional Act A/SA.2/01/08 establishing the ECOWAS Regional Electricity Regulatory Authority (ERERA);

Having regard to Regulation C/REG.27/12/07 of December 15, 2007, as amended, on the composition, organization, powers and operation of ERERA;

In view of the Directive C/DIR.1/06/13 of June 21, 2013, on the organization of the regional electricity market, in particular, Article 8 (1) thereof;

In view of the Regional Market Rules for the West African Power Pool (WAPP) approved by Decision N°005/ERERA/15, in particular Articles 12 and 13.

The purpose of this Directive is to propose a model Power Purchase Agreement whose principles, standards and procedures are applicable to projects for the production and sale of electrical energy undertaken on the territory of the Member States.

Summary

This **CONTRACT** is made this [insert Effective Date: day/month/year]: **BETWEEN**

[Insert the name of Seller], having its principal place of business located at [insert geographic address] and registration number [insert number], duly represented by [its] [insert Title of duly authorized representative of Seller], [insert name of duly authorized representative of Seller], (hereinafter referred to as "**Seller**").

on the one hand,

AND

[Insert the name of Buyer], having its principal place of business located at [insert geographic address] and registration number [insert number], duly represented by [its] [insert Title of Buyer's duly authorized representative], [insert name of Buyer's duly authorized representative], (hereinafter referred to as "**Buyer**").

on the other hand,

Seller and Buyer are hereinafter individually or collectively referred to as the "Parties" or individually as the "Party or **Parties**".

WHEREAS

1. [Insert here the contract concluded between the energy producer and the Contracting Authority or the private third party, party to the production or distribution contract (concession contract, public-private partnership contract etc., the " Principal Contract "]
2. Seller agrees to sell all net electrical output.
3. Buyer agrees to purchase all net electrical energy output from [insert name of generating facility] in accordance with the provisions of this Agreement.

THE PARTIES HAVE THEREFORE AGREED AS FOLLOWS:

Definitions and Interpretation

Definitions

Capitalized terms are defined in Schedule X of this Contract.

Rules of Interpretation

Each Party shall be bound by an obligation of good faith and conduct in accordance with Good Construction Practice and Good Industry Practice in the exercise of its rights and the performance of its obligations and duties under this Contract.

The Schedules are an integral part of this Agreement. In the event of any inconsistency between any section contained in the text of this Agreement (excluding the Schedules) and any section contained in the Schedules, the sections contained in this Agreement (excluding the Schedules) shall prevail.

With the exception of kcal, any reference to MW, MW/h, KW, KJ, KWC and any other unit of electrical or mechanical measurement has the meaning given to it in international practice.

If any action is required to be performed under this Agreement on a date when it cannot be performed because such date is not a Business Day, such action shall be deemed to be required to be performed on the Business Day immediately following such date.

All-time references shall be on the basis of a 24 Hour day, where 00:00 means midnight and 12:00 means noon, and all times set forth in this Contract shall refer to local time in the [Cite the location].

Any reference to an amount of money shall be deemed to mean such amount denominated in [Specify currency].

Any reference to Articles and Schedules shall mean a reference to the Articles and Schedules of this Contract, unless otherwise specified.

The headings are inserted for convenience of reference only and are not part of this Agreement, and in no way affect the legal construction or interpretation of the texts and have no legal effect.

Purpose

The objective of this contract is to define:

The terms, conditions and procedures by which Seller exclusively supplies and sells to **Buyer all of the** net production of electrical energy from [insert name of generating facility] and Buyer remunerates Seller for making available to Buyer at the Delivery Point the Quantities of Electrical Energy produced, as defined below.

Conditions of Entry into Force

Prerequisites

The Contract will come into effect when the following conditions are met:

- a) Signature of the Contract by the Parties;
- b) Obtaining by Seller all authorizations, licenses and permits required by the authorities concerned and duly validated for the execution of the Project as described in the attached Schedule, for the export and use of supplies and equipment in [insert name of Country] and more generally for the fulfilment of its obligations under this Contract;
- c) Obtaining by Buyer all authorizations or, if applicable, all waivers or exemptions necessary to fulfil its obligations under this Contract;
- d) Execution by Seller of financing agreements necessary to secure the financing of [*insert name of generating facility or project to construct and operate such facility*] and its operation and the fulfilment of conditions precedent to their effectiveness and the disbursement of funds;

- e) Opening of an escrow account by the Buyer to guarantee payment of the Quantities of Electrical Energy produced by the Seller under the conditions defined below;
- f) Seller shall provide Buyer with a Performance Security in the amount of [insert amount and currency] in accordance with the attached model;
- g) Entry into Force of the Prime Contract between [*insert name of Contracting Authority*] and the Seller.

Cooperation between the Parties

Buyer and Seller agree to use their best efforts and to cooperate in order to enable the fulfilment of the conditions above as soon as possible. Each of the Parties shall provide the other with all relevant information to this effect.

The Parties shall keep each other promptly informed of the fulfilment of the conditions precedent.

In the event that the Contract does not become effective within [insert number of days/months] of the execution of the Prime Contract, the Parties shall negotiate such mutual arrangement as may be necessary to maintain the validity of the Contract. If such agreement is not reached within (...+ 1) month after the execution of the Prime Contract, Seller shall have the right to terminate the contract.

Duration of the Contract

This Agreement shall become effective on the Effective Date and, subject to these provisions, shall be binding upon and remain in full force and effect for the benefit of the Parties for the period of time set forth in Schedule... [*Commercial Operation Date and Duration*].

The Term of this Agreement may be extended by the Parties in writing prior to the expiration of its term upon mutually agreed terms and conditions.

In the event of early termination, Buyer shall be responsible for dismantling and restoring the land.

Early termination by the Parties or a third party shall give rise to the damages and penalties.

Obligation of the Parties

Obligations of the Parties during the Construction Period

Obligation of the Seller during the Construction Period

During the period prior to the commissioning of [*insert name of generating facility*], Seller shall operate [*insert name of generating facility*] at its sole risk and in the best interest of Buyer, with a view to maximizing the production of electricity over the long term and selling the electricity produced to Buyer.

During the Construction Period, Seller shall be responsible for the maintenance, upkeep and repair of any kind required by [*insert name of production facility*].

The Seller shall also :

- a) Comply with the laws and regulations in force that are applicable to it, particularly with regard to roads, police, hygiene, work regulations and safety;
- b) To comply at its own expense, with respect to the above-mentioned regulations, with any prescription, claim, or injunction concerning it that may emanate from the competent authorities concerning [*insert name of the production work*] and the adaptation work necessary to bring it into conformity with the standards that have become applicable;
- c) Maintain its Authorizations for the use of [*insert name of generating facility*] or for the conduct of its business ;
- d) To pay all sums, royalties, taxes and other fees relating to the operation of [*insert name of production work*];
- e) Develop an environmental management plan approved by the Ministry in charge of environmental protection and have it respected by subcontractors.

Connection and Delivery Point

The Seller undertakes to [*insert here the conditions of connection to the network*] in order to be able to inject the electric energy production on the line of [*insert here the technical conditions and geographical data of the connection place*].

In the event of Seller's Serious Breaches of its obligations after Commissioning of the Power Plant/Generating Facility, Buyer shall be entitled to apply penalties as follows:

- a) Liquidated and Dischargeable Penalties, if the annual availability rate of [*insert rate*] is not met by Seller and such failure is not due to the occurrence of Force Majeure as defined in Schedule ... of the Agreement, penalties of [*insert amount or percentage*];
- b) Capped, as follows: Annual penalties shall be limited to (X) of Seller's Annual Sales.

Testing and Commissioning

Testing, inspection, repair, recalibration and replacement of Seller's metering installation and Remote Reading equipment shall take place in accordance with the procedures agreed upon and detailed in Schedule [X] attached hereto.

Preliminary Tests and Verifications

Compliance Testing of [Insert name of generating facility] and its appurtenant facilities shall be performed in accordance with the requirements of the corresponding procedures provided to Buyer and, if applicable, to the Independent Engineer, in accordance with Schedule [X] to this Contract.

The performance of these tests and the transmission of their results to the Purchaser (and to the Independent Engineer) are a prerequisite for the start of the Commissioning Tests of the facilities concerned.

Buyer (and, if applicable, the Independent Engineer) may/shall, upon prior written notice to Seller, witness part or all of the performance of such Preliminary Tests and verify that the performance procedures have been followed and that the results obtained have been achieved.

Functional tests

The conditions precedent to the commencement of the Performance Tests with which the Seller shall comply are described in Appendix [X] of the Contract.

The Operational Tests shall be performed by and under the responsibility of Seller in accordance with Schedule [X] to this Agreement in accordance with the testing and commissioning schedule and in accordance with the testing procedures set forth in Schedule [X] hereto.

Buyer (and, if applicable, the Independent Engineer) may/shall, upon prior written notice to Seller, witness some or all of the performance tests and verify that the performance procedures have been followed and that the results obtained are those expected.

Commissioning

Full Commissioning of [insert name of production facility] shall not occur unless the Preliminary and Operational Tests as described in Articles 60.1 and 60.2 above and in Schedule [X] of the Contract have been performed in accordance with the corresponding Test Procedures and the results of such Tests are in accordance with those expected under the procedures or reference standards.

Performance Tests

The Performance Tests for [insert name of generating facility] as described in Attachment [X] shall be performed prior to the Operating Period Start Date.

Performance Tests of [insert name of production facility] shall be conducted in the presence of representatives of the Purchaser and the Independent Engineer. Calculations resulting from the Performance Tests shall be submitted to the Purchaser and the Independent Engineer for verification.

In the event that the result values found for [*insert name of production facility*] do not match the values guaranteed in Schedule [X] of this Agreement, Seller shall pay Penalties in accordance with Schedule [X] of this Agreement.

Completion of Performance Tests in accordance with the technical specifications and procedures set forth in Attachment [X] hereto is a prerequisite to the commencement of the Operating Period for [*insert name of production facility*].

Obligations of the Parties during the Operating Period

Obligation of the Seller for the Provision of Capacity and Production of Electrical Energy

From the Start Date of the Trading Period and until the expiry of this Contract, in accordance with its terms and subject to the conditions set forth herein, the Seller undertakes to make available exclusively to the Buyer, at the Delivery Point, the Net Capacity of the Quantities of Electrical Energy produced by the Power Plant as defined in Appendix [X] of this Contract.

Production of Electrical Energy

The Seller undertakes to supply exclusively to the Buyer, at the Delivery Point, an Annual Minimum Net Production of Electrical Energy (PNME) of [X] MW/h corresponding to a guaranteed monthly production of [X] MW/h as defined in Appendix (X) of this Contract.

The quantities of Net Electrical Energy delivered to the Buyer at the Delivery Point shall be measured and recorded using the Metering System defined in Appendix [X] to this Contract with respect to the Net Electrical Energy delivered at the Delivery Point by [insert name of generating facility]. The equipment and instruments necessary for such precision measurements are included in the supply of the [insert name of generating facility] equipment as defined in Appendix [X] to this Contract.

From the Operating Period Start Date of the [insert name of generating facility] and until the expiration of this Agreement, Seller shall dedicate all of the Net Available Capacity of the [insert name of generating facility] solely to Buyer and shall not sell any Electrical Energy produced by the [insert name of generating facility] whether on the national, regional or any other export market, without Buyer's prior written consent.

Seller shall be entitled to periods of Scheduled Shutdowns as provided in Schedule [X] for the purpose of undertaking scheduled maintenance, inspections and repairs, annually for [insert name of generating facility]. The Parties during the term of the Contract shall jointly establish at the beginning of each year a Maintenance Program for the current year, taking into account such Scheduled Shutdowns.

Seller shall notify Buyer, in writing, immediately upon the occurrence of an event causing a forced outage of [insert name of production facility] and/or any event, other than a Scheduled Outage, which results in a forced outage. Seller shall include in its notice to Buyer an estimate of the duration of the forced outage, together with a detailed description of the situation, its cause and the corrective actions being taken to limit the duration of such forced outage.

Subject to the existence of an event of Force Majeure and/or an event that has occurred and is being resolved, Buyer shall be obligated, from the Commencement Date of Commercial Operation of [insert name of generating facility] until the expiration of the Prime Contract or this Contract, pay monthly to the Project Company, in accordance with the terms of Article [X] and Schedule [X] of this Agreement, the Net Electrical Energy Production determined each month in accordance with the provisions of Article [X] of Schedule [X] of this Agreement.

The making available to the Buyer at the Delivery Point, by the Seller, of the Net Available Capacity produced by the [insert name of the generating facility], according to the Buyer's requests and the instructions of the Regulator of the National / or Regional Transmission Network, operates, from the Delivery Point, the transfer, from the Seller to the National / Regional Transmission Network, of the risks relating to the Electric Energy delivered to the Buyer by the Seller via the National / or Regional Transmission Network.

It is understood, however, that, as an exception, the Seller will be considered to be in authorized unavailability and, as such, will not be bound by its obligations specified in Articles 46.1 and 46.2 of this Contract in the following cases and conditions:

- a) When [*insert name of production facility*] is in a Scheduled Shutdown period;
- b) In the event of a Force Majeure event in accordance with the provisions of Article [X] of this Contract;
- c) (c) The occurrence of a change in applicable law or regulation making it unlawful or impossible for Seller to perform all or any part of its obligations, relating to the operation of [*insert name of generating facility*], under this Agreement;
- d) In the event that, in the absence of any breach by the Seller, the continued operation of the [*insert name of the generating facility*] is likely to jeopardize the safety of the Equipment and Facilities of the said facility, the Interconnection and Connection Facilities and/or, more generally, the National/Regional Electricity Transmission System;
- e) In the event that Buyer requires Seller to disconnect the Power Plant or reduce power generation;
- f) In the event that Buyer agrees with Seller that, under the circumstances, an interruption or insufficiency of Available Capacity shall not be deemed to constitute a breach by Seller of its obligations under Article 46 of this Agreement.

The Seller undertakes to transmit to the Buyer a monthly production forecast table, based on the model below, and to set up a communication protocol with the Buyer in order to help it coordinate the different sources of electricity production on the network.

Seller agrees to operate [*insert name of production facility*] to its maximum capacity and to produce the largest Quantities possible, within the limits of what a prudent and reasonable Operator would do.

Seller shall inform Buyer of any incident that it becomes aware of that may adversely affect the production of [*insert name of production facility*], no later than 48 hours after the incident is discovered. Seller shall also inform Buyer of any change in the environment of which it is aware that may result in a nuisance or a significant decrease in production of [*insert name of production facility*].

The Seller undertakes to inject all the Quantities into the public network, except, where applicable, for the consumption of [*insert name of generating facility*]. The Quantities are deemed to be delivered to the Buyer within the balancing perimeter designated by the Buyer. The transfer of

responsibility and ownership from the seller to the Buyer is effective when the Quantities cross the Delivery Point.

The Quantities Delivered are measured and verified by the Metering Installations in accordance with the rules and procedures applied by the public network operator at the Delivery Point.

Buyer's Obligations during the Operating Period

The Buyer undertakes to acquire from the seller all the Net Quantities Delivered of electricity on a metering point reading basis in accordance with the procedure described in Article 49.

In addition, the Buyer agrees to:

- a) To hold and maintain the functions of Balance Responsible Entity in its own name or through a Subsidiary or partnership agreement, and to execute in good faith the participation agreement as Balance Responsible Entity concluded with the Public System Operator and to assume the related costs;
- b) Integrate [*insert name of generating facility*] into its Balance Perimeter through the attachment agreement for [*insert name of generating facility*] concluded with the Seller;
- c) To bear alone, with the Public System Operator, the cost of discrepancies observed within its Balance Perimeter between the injections made into the network and the scheduled injections, and generally any other cost (tax, duty, contribution of any kind) relating to the injection of generation into the Network, its transmission and its sale on the market.

The Buyer also undertakes to ensure that:

- a) The System is in a condition to receive and transport the Quantities; and
- b) No technical or legal constraints that are not the responsibility of Seller hereunder shall prevent or affect the performance of this Agreement.

In the event of a Serious Default by the Buyer in implementing the conditions allowing the delivery of the Net Quantities Delivered of electricity, penalties equal to the difference between the theoretical amount of the Quantities produced and the Net Quantities Delivered shall be applied.

Currency – Selling Price - Billing

Currency

All payments under this Agreement, including payments due in the event of default, shall be calculated in [insert currency] or the equivalent of [insert currency] in CFA Franc (XOF).

Price

The Net Sales Price is fixed at [*insert amount*] per KWh or its equivalent in XOF, i.e. [*insert amount*]. For the calculation of the equivalent in XOF of the tariff expressed in [*insert currency*], the applicable exchange rate is the monthly average of the month preceding the billing of the reference rate determined for [*insert currency*] on the symmetrical currency auction market in which BEAC participates.

All of the Quantities for the month in question shall be purchased and paid for by the Purchaser at the net selling price. The amount of the sale price shall be expressed exclusive of tax. This amount shall be increased by VAT at the rate applicable on the date of invoicing in accordance with applicable law.

The Buyer shall pay, in addition to the net sale price, all other existing and future taxes, duties, fees, fiscal charges and contributions of any kind applicable on the date of issue of the invoice and relating to the sale of electricity delivered to the Public network, borne by the Seller in respect of the Quantities made available at the Delivery Point under the Contract.

Revaluation

It is agreed that this price will be re-evaluated every year by the following revision formula:

- a) The Net Sales Price may be adjusted downwards in the event of a change in the economic situation of the Seller, and in particular, if the latter is negatively affected by a change in its legal and fiscal situation, an increase in taxes, an upheaval in economic conditions, an event of Force Majeure affecting the Seller, under deduction of the indemnities received under insurance.
- b) Each month, before the tenth (10th) of the month, Seller shall send Buyer an invoice for the Quantities delivered during the previous month. Such invoice shall include the net sales price together with an indication of the market price and applicable taxes. Notwithstanding Article [X] on Notifications between the Parties, Seller shall forward the invoice to Buyer by e-mail confirmed by ordinary mail.

- c) If the data necessary to prepare the monthly invoice is not available, Seller may base its invoice on reasonable estimates based on available pricing information. In this case, Seller shall within [X (X)] months of the end of the Annual Period concerned, adjust the amount invoiced on the basis of the actual data.
- d) Payment by Buyer shall be made no later than the tenth (10th) business day following receipt of the monthly invoice or annual adjustment, by bank transfer to Seller's account, the details of which are set forth in Schedule [X].

Billing

In the event of a breach or default in the performance of this Agreement for which payment of compensation is provided, the aggrieved Party shall issue a specific invoice containing the methods of calculation of the amounts due, specifying the contractual provisions on which the payment obligation is based as well as the periods of time or other factors on which the payment obligation is based.

In the event of delay in payment of any invoice or part thereof, interest shall be charged on the amounts due at the rate applicable to [insert country name], 1 month published on the due date plus ten percent (10%) per annum. Interest shall be calculated and due from the due date of the invoice until the date of payment in full.

Contestation of the Billing

After [X (X)] days without objection by Buyer, the invoice submitted by Seller shall be deemed accepted.

In the event of a dispute over an invoice, Buyer shall immediately inform Seller in writing. The Parties shall proceed in good faith to exchange all information necessary to resolve the dispute.

In the event, they conclude that the protest is well-founded and to the extent that the invoice has already been paid, the amount that has been improperly paid shall be credited to Buyer's account, the details of which are set forth in Appendix [X], or shall be the subject of a credit note within ten (10) days from the date the protest is resolved. Such amount shall be increased by interest, as defined in Article 48.4, based on the number of days from the date of Seller's initial receipt of Buyer's protest to the date of Seller's refund.

Measurement and Control of Energy and Power

Ownership of Counting Installations

Buyer shall install, operate, and maintain the counting facility for counting the flow and power of electricity sold by Seller to Buyer in accordance with this Contract.

Seller shall finance, develop, install, operate, and maintain Remote Data Collection equipment to corroborate Buyer's measurements.

In both cases, the metering points shall be located on the Buyer's side [insert metering location], connecting [*insert name of generating facility*] to the Public System.

Counting of the delivered Electricity

Surveys

At [X] hours on the last day of each month, the Seller shall take a reading of the Metering installation and the Remote Reading equipment. The Buyer shall be notified within a reasonable period of time in order to give him the opportunity to visit the site to check the reading.

Inconsistency

In the event that inaccuracy or malfunction of the metering installation is established, the exact volume of electricity delivered during the period for which the measurements are disputed shall be determined by Seller's metering equipment or by any other procedure defined in Schedule [X].

Regularization of billing

Seller shall issue a specific invoice including the volume delivered but not invoiced due to the inaccuracy or malfunction of the measurement system. The invoice shall be sent to Buyer within [X (X)] days of the final statement corresponding to the disputed period.

Payment by Buyer shall be made no later than the [Xth (X)] business day following receipt of the invoice, by bank transfer to Seller's account, the details of which are set forth in Appendix (X).

The Quantities of Electricity invoiced by the Seller shall be checked by the Buyer on the basis of validated metering data supplied by the network operator. In case of inconsistency between the data provided by the Seller and those provided by the network operator, the Buyer shall ask the producer to contact the network operator in order to eliminate this inconsistency.

Insurance

Seller shall obtain and maintain at its own expense from approved insurers [Insert country name] the following insurance policies:

From the Construction Start Date to the Effective Commissioning Date,

- (a) all risk construction insurance (TRC) in respect of the construction of [insert name of production work here] in an amount equal to its total value within deductible limits not exceeding those set forth in Schedule [X] against any loss or damage resulting from the performance of the construction work;
- (b) marine insurance covering the full value of materials and equipment imported into [insert country name] for the construction of [insert name of production facility here];
- (c) Public Liability Insurance covering the Company's liability to third parties for death or personal injury to persons and loss of or damage to property arising in connection with the performance of the construction of [insert name of production facility here]. The amount of insurance coverage shall not be less than that set forth in Schedule [X] attached hereto;

From the Effective Commissioning Date until the end of the Operating Period,

- (a) insurance covering any damage or loss occurring during the Operating Period; and
- (b) Insurance for death or personal injury to any person employed by the Seller, the Contractor or its subcontractors during the Operating Period.

Buyer shall obtain and maintain at its own expense the following insurance policies:

- (a) Insurance covering any damage or loss to the Interconnection Facilities; and
- (b) Insurance for death or personal injury to any person employed by Buyer or its subcontractors.

Seller shall produce upon Buyer's request the policies or certificates of all insurance required to be carried by Seller under this Contract together with receipts for payment of premiums thereon;

- (a) Not make any material change in the terms of the insurance policies without Buyer's consent. If an insurer makes any material change in the terms of the insurance policies purchased, Seller shall immediately notify Buyer; and
- (b) In any event, comply with the terms and conditions of the insurance policies it is required to maintain under this Agreement.

Termination

Termination for Seller's Fault

Termination for default by Seller shall result in repayment by Buyer of unamortized debt and equity invested. Seller will assign [*insert name of production work*] in return for no consideration.

Termination for Buyer's fault or at Buyer's discretion

Termination for default by Buyer shall result in a refund by Buyer of unamortized debt, Seller's equity in debt and investment, gross margin losses calculated over the remaining term of this Contract and amounts remaining due to Seller under this Contract.

This compensation gives rise in addition to the payment of termination indemnities representing X% of the compensation (amount of the indemnity to be specified by the lenders).

Termination due to Force Majeure affecting the Seller

Termination by force majeure of Seller resulting in termination of the Attachment Agreement or license shall result in repayment by Buyer of the unamortized debt, less insurance proceeds. In return, Seller shall assign [*insert name of production facility*] free of charge.

Termination due to Force Majeure affecting Buyer

Termination for prolonged Force Majeure affecting Buyer shall result in refund by Buyer of unamortized debt, Seller's equity in debt and investment, lost gross margin calculated over the remaining term of this Contract and amounts remaining due to Seller under this Contract.

General Dispositions

Notifications

Any amendment required or permitted under the terms of the Contract shall be in writing and shall be validly made if delivered by hand-delivered letter, or sent by registered mail with return receipt, or, by facsimile or electronic mail confirmed by hand-delivered letter or by registered mail with return receipt addressed to the registered office or domicile of a Party as set forth at the head of the Contract.

Either Party may change the address to which notices and copies thereof are to be sent by notifying the other Party as provided above.

Notifications made by registered mail with return receipt requested shall be presumed to have been made on the date affixed by the addressee to the notice of receipt or on the date of last presentation if not withdrawn by the addressee.

Notices made by electronic mail shall be deemed to have been made on the date the electronic mail is sent, provided that each notice by facsimile or electronic mail is confirmed by hand-delivered letter on the same day or by registered mail with return receipt sent on the same day.

Nullity

In the event that any of the provisions of this Agreement are declared null and void or ineffective in any way and for any reason whatsoever, the Parties agree to consult each other in order to remedy the cause of nullity found, so that, unless it is impossible to do so, the Agreement shall continue in effect without interruption.

Modification of the Contract

Any modification of the contract can only result from a written agreement of each of the Parties.

Tolerance

The fact that a party does not avail itself of one of the rights conferred on it by the contract shall not constitute a waiver on the part of that party to avail itself of that right at a later date, if the conditions for its exercise are again met.

Scope

The Parties agree that the Contract represents their entire agreement as to its subject matter and supersedes, cancels and replaces any prior agreement or document having the same or similar subject matter as the Contract.

Fees

Each of the Parties shall bear the costs incurred for the purposes of negotiating and concluding the Contract.

Confidentiality

All information relating to the negotiation and performance of the Agreement and all information disclosed by one Party to another is confidential. Each Party shall enforce such confidentiality by any person over whom it has control or authority.

A Party may legitimately disclose or use the information only if, in addition, the information:

- a) Are necessary for the performance of the Contract;
- b) Is in the public domain at the time of disclosure;
- c) Was, at the time of disclosure, already known to the Depository Party other than by a third party under an obligation of confidentiality; or
- d) Was disclosed to the Depository Party by a third party not under a duty of confidentiality; or
- e) In the event that either Party needs to assert its legal rights.

A Party that is the custodian of confidential information shall nevertheless be entitled to disclose such information to its agents, advisors or employees to whom it is necessary to disclose such information for the purposes of this Project. In such event, the Party disclosing such information shall comply with the confidentiality obligation as set forth above and shall be liable for any unauthorized or improper use or disclosure of confidential information disclosed to such persons as defined in Article 67.7.

This confidentiality obligation shall be binding on the Parties for the duration of the Agreement and for a period of [X (X)] years from its termination.

Declarations and Attestations

The Parties declare and attest to the following:

- a) Each Party is duly incorporated and shall conduct its business in accordance with the laws, regulations and bylaws applicable to it.
- b) Each Party has full power and capacity to enter into the Contract. It is acting on its own behalf and has made an independent decision to enter into the Contract, the benefits of which it is in a position to evaluate, understand and accept the terms, conditions and risks.
- c) Each Party shall have, at the latest at the time of the commissioning of the Solar Power Plant and continuously until the end of the Contract, any right or authorization necessary for the performance of the Contract.
- d) Buyer warrants that the provisions hereof are in accordance with the laws of [*insert country name*] and agrees to indemnify Seller for any consequences arising out of the inaccuracy of Buyer's statements.

Responsibility

The responsibility of the Parties is strictly limited to the obligations defined in the Contract.

Neither Party shall be liable to the other Party or to any third party for indirect or consequential damages or loss of profits, use, production, operations, contracts, opportunity, earnings, or goodwill, other than penalties for delay and indemnities expressly provided for under this Contract.

The Parties expressly waive, on behalf of themselves and their insurers or subcontractors, any claim for compensation for damages caused by one of the Parties beyond the limits and exclusions mentioned in the Contract.

Change of Circumstances

The terms of this Contract have been agreed by the Parties in consideration of the economic, technical and legal situation at the date of its conclusion.

In the event of economic fluctuations in [*insert member country*], such as an increase in Seller's costs, an increase in the rate of inflation with respect to the goods to be supplied, the work to be performed, the services to be rendered or a substantial change in Seller's rights and obligations or any similar event not contemplated by the Parties and beyond their control occurring subsequent to the said conclusion and resulting in a fundamental alteration of the economic equilibrium of this Contract, thereby placing an undue burden on Seller for the performance of its contractual obligations, Seller shall be entitled to request an adjustment of the contractual terms if it invokes such circumstances, provided that it demonstrates the insurmountable nature of such circumstances.

Adjustment of contractual terms may include, but is not limited to, the following list:

- a) Rate Review;
- b) Direct compensation;
- c) Extension of the duration of the Power Purchase Agreement.

Buyer represents that the implementation of such adjustment variables is valid under [*insert country name*] law.

In the absence of agreement between the Parties, the Contract may be terminated by operation of law and without notice by the Seller suffering the negative consequences of the change in circumstances, with a notice period of [X (X)] days. The terms and conditions of indemnification of

the Seller are identical to those applicable in the event of Force Majeure affecting the Seller as provided for in this Contract.

Special regime when an index or reference disappears

In the event of the disappearance of an index or market benchmark used in the context of the Contract, the Parties shall work together to replace it with the index or benchmark that replaces it or has the characteristics that are closest to those of the disappearing index or benchmark, while respecting the initial structure of the Contract.

Applicable Law – Settlements of Disputes

The Agreement is governed by the laws of [*insert country name*].

Any dispute of a technical nature that may arise during the performance of this Contract, including differences of opinion regarding the determination of costs and delays, may be referred by the more diligent Party to a Technical Expert under the [*insert technical expert forum*] rules. The recommendations or conclusions of the appointed experts shall be enforced until final settlement of the dispute or differences by arbitration or by any other means consistent with the provisions of this Contract.

Any dispute or difference which could not be settled amicably between the Parties within a period of three (3) months shall be finally and exclusively settled under the [*insert arbitration forum*] Rules.

The arbitration shall take place at [*insert place of arbitration*] and the arbitral proceedings shall be conducted in [*insert language of arbitration*].

Assignment of the Contract by the Seller

Seller may freely assign this Contract to a company in which it has Control, or to a company having Control over Seller or under common Control with Seller (in all three cases, a "Project Group Company") or substitute a Project Group Company for the benefit of all or any part of this Contract, or to any financial institution holding a claim against Seller subject to the prior written consent of the competent authorities of the Member State and/or Buyer. The purchaser or the competent authorities of the Member State may refuse to consent only if, in the reasonable opinion of the State and/or the Purchaser, the creditworthiness of the potential assignee would be less than that of the Seller, and shall give detailed reasons for any refusal.

ANNEXE B

Directive on the development and implementation of Concession and Public Private Partnership (PPP) projects.

Introduction

Substantial private sector investments and a significant contribution of private capital are necessary for the development of energy access and the provision of quality energy services to the population. The involvement of the private sector in the provision of new and innovative technologies, as well as alternative financing mechanisms and financial guarantees, particularly with regard to the use of renewable energy sources in rural areas, is also a prerequisite for achieving this objective. This analysis by ECOWAS has resulted in the adoption of the Energy Protocol under which the Member States commit to restructuring their energy sectors in order to, inter alia, facilitate the participation of the private sector in the development and provision of reliable, quality and affordable energy services.

Among the major obstacles to the development of power generation in the region, as highlighted by WAPP in the updated ECOWAS Master Plan 2019-2033, is the inadequacy of the legal environment for effective mobilization of the private sector.

The establishment of an enabling legal, institutional and regulatory environment is not only a prerequisite for addressing weaknesses and inefficiencies in power generation and access to electricity but also provides an incentive for potential investors and independent power producers to participate in its development.

The PPP concept encompasses a wide variety of contractual arrangements relating to the nature of the tasks and responsibilities transferred to the private sector, the terms of remuneration of the private operator, the award of partnership contracts, and the allocation of project risks between the parties (traffic risk, demand risk, construction risk, foreign exchange risk, fiscal risk, etc.). Most member states have their own general understanding of the concept of "public service" and of the respective organization, role and responsibilities of public authorities and the private sector in the management and provision of that service. Some have regulations on the delegation of public services (DSP), which allows a public authority to delegate the design, construction, operation and maintenance of electricity generation, transmission and distribution infrastructure to a private delegate.

The harmonization of the legal framework governing the emergence of new players, the introduction of new technologies and alternative solutions in terms of environment and social inclusion needs to be established with the objective of forming a homogeneous, clear and coherent normative regime applicable to all Member States in order to facilitate the implementation of regional energy projects and strengthen the regional electricity market within ECOWAS.

Section 1: Harmonization of the regulation of the Public Service Delegation in the electricity sector

General regime for PPPs in the electricity sector

The Member States will have to determine the constituent elements of the partnership contract between the public authorities and the private partner, including the subject matter and the nature of the tasks and services that can be delegated as well as the terms of remuneration of the private partner, taking into account the following elements:

Definition of the partnership contract

This definition should be broad enough to encompass the different variants of partnership agreements, from the construction of administrative buildings by means of an emphyteutic lease to the concession and management contract for electricity production, transmission, and distribution infrastructures, including ancillary services related to access to electrical energy.

The partnership contract must have both of the following characteristics:

- The agreement must have as its object, directly or indirectly, the provision of a public service; and
- A substantial part of the risks associated with the provision of the public service must be borne by the private operator.

Nature of the partnership contract and identity of the granting entity

The legal nature of the contract will also have to be defined in order to determine the regime applicable to the contract and the rights and obligations of the parties, particularly with regard to the exorbitant prerogatives of common law from which the public entity could benefit if it is a public law contract. The legal entities (e.g. State, public establishment, local authorities) entitled to conclude partnership agreements must be clearly identified.

Object of the partnership contract

The regulation of partnership contracts must include the definition of the public service activities or activities related to the fulfilment of a public service mission for which the public entity (the State and its subdivisions, public enterprises) is responsible under the laws and regulations in force in the Member States.

The object of PPP contracts is generally defined by its overall nature, which is not limited and may include all or some of the following activities:

- a) Design;
- b) Financing or part of the financing;
- c) Construction or transformation;
- d) Operation;
- e) Management;
- f) Servicing;
- g) Maintenance.

In connection with works, equipment, or intangible assets necessary for the provision of a public service as well as other services contributing to the exercise of a public service mission which is within the competence of the public person.

The PPP contract may also authorize the private operator to carry out related activities, enabling it to generate additional income, provided, however, that this does not interfere with its contractual obligations.

Duration of the partnership contract

The activities are entrusted by a contracting authority to a private operator under the terms of a partnership contract concluded for a period determined according to the amortization period of the investments made by the co-contractor, the services required of it, as well as the financing methods adopted.

Modalities of remuneration of the private operator

The PPP regulation can encompass several modalities of remuneration of the private co-contractor, as follows:

- a) Be spread over the entire term of the contract;

- b) Be linked to performance objectives and/or to the operating revenues of the work or service provided by the co-contractor and levied directly in the form of a fee;
- c) Integrate additional or ancillary revenues, known as "value-added" revenues.
- d) Thus, within the framework of a partnership contract, the remuneration of the private partner can be carried out according to one of the following methods or according to a combination of all or part of them:
- e) The payment of a variable amount linked to performance objectives and paid by the contracting authority for the entire duration of the partnership contract;
- f) The payment of a fee deducted directly by the co-contractor from the amounts collected from users or from the operating revenues of the facility or service for which it is responsible;
- g) The payment of a fixed amount, supplemented by a variable amount corresponding to a percentage of the operating revenues of the service or public facility for which it is responsible.

Preliminary study and project cycle management

Conditions for the use of partnership contracts

The evaluation of projects that can be implemented as PPPs and the process used to select potential PPPs is critical to the success and sustainability of partnership arrangements.

As a mechanism that derogates from the general public procurement regime, the use of partnership contracts is subject to the existence of specific circumstances that justify their use. The elements justifying such recourse, such as urgency, the technical complexity of the project envisaged, the quality/price ratio aimed at optimizing the commitments of the State (or its constituent parts) and the good use of public funds, should also be clearly established.

Consequently, such an appeal must be subject to a prior evaluation sanctioned by a detailed opinion of opportunity. Whatever the eligibility criterion used, the evaluation report must include all the elements necessary to demonstrate that the project is capable of meeting the needs of the community under advantageous conditions.

Criteria for appeal

Criteria that may be used include the following:

- a) The use of PPP meets the strategic objectives and sectoral policy set by the government.

- b) Urgency criterion: the awarding authority must demonstrate the urgency of the use of PPPs, which would otherwise cause a detrimental delay. This criterion should be a substantive condition for the use of the partnership contract and not a condition for the choice of a simplified procurement procedure. However, urgency sometimes requires that the contract be awarded without.
- c) The technical complexity of the project and/or its legal and financial set-up showing that the public entity does not objectively have the means to carry out the project.
- d) The exposition of the economic, financial, legal, and administrative reasons (overall cost, risk sharing, performance objectives) through a comparative analysis of the different options.
- e) The capacity of the public entity to fulfil its obligations under the contract and to manage and supervise the execution of the agreement.
- f) The division of responsibilities and risks between the public and private partners should be clearly defined, as well as the guarantees and commitments to be made by each party.

Organization in charge of the evaluation procedure

This procedure for evaluating the use of PPPs and identifying and approving projects should be carried out by a team dedicated to carrying out these tasks, following the example of support committees for the implementation of PPPs as they exist in many countries with specific regulations.

Its nature, the purpose of its mission, the scope of its responsibilities, its composition, its financing as well as the modalities of its organization and operation should be clearly defined.

Feasibility of the project

The feasibility phase should involve full investigations of the title to the production and operating site, including the status of any land claims, easements, leases, and constraints, as well as investigations of geophysical conditions, existing soil contamination, availability and capacity of utilities, and the environmental and heritage status of the land under consideration. It is also essential to identify the status of existing assets.

Modalities of PPP and concession contracts

Selection criteria for the successful bidder/private partner

Member States should determine the standards and principles governing the bidding procedure, including the various stages of the bidder qualification process, the modalities for selecting the private investor/operator, i.e. open or restricted bidding, pre-qualification phase and competitive dialogue procedure. In addition, the bid evaluation criteria should be specified taking into account the provisions of the public procurement regulations in force in the Member States.

The principles of competition, transparency and equal treatment in the selection of the private partner should govern the selection, evaluation and awarding of the contract.

In this regard, national preference and the granting of bonuses to the bidder, including national or regional economic operators, the nature and extent of employment of disadvantaged populations such as youth and women should be taken into consideration in the selection of the successful bidder.

The principle of prior publicity of calls for tenders is common to all forms of public procurement but should be reaffirmed in the PPP legislation.

Consideration of environmental and social issues

Energy projects should be developed in accordance with applicable laws of Member States, including ECOWAS Directives, Decisions and Regulations, as well as international best practices in the electricity sector in terms of risk assessment and management and environmental and social impacts. These international best practices are highlighted in the sustainable development policies and performance standards of international institutions such as the World Bank and the African Development Bank and applied by most international institutions.

Examples of environmental impacts related to PPP include:

- a) Pollutant emissions;
- b) Habitat destruction;
- c) Deterioration of fauna and flora;
- d) The introduction of invasive species.

With respect to social impacts, these include:

- a) Displacement and resettlement of people living in the project area,

- b) Loss of livelihoods for people affected by the project,
- c) Limitation or reduction of access to already available resources, including water,
- d) Impacts on workers' economic conditions, including layoffs,
- e) Occupational health and safety issues, child labour,
- f) Impacts on cultural heritage affected by the project.

Environmental and social impact study

Member States will need to determine the responsibilities between the public entity and the private sector for environmental and social aspects and define who will be responsible for conducting an environmental and social impact assessment, which should influence project design, and developing other tools to manage the environmental and social risks of the project. These tools include environmental and social management plans defined according to the needs of the project.

The use of renewable energy sources, energy efficiency measures for infrastructure and services provided should also be important selection parameters.

Selection procedure

Several phases in the selection of the private partner can be distinguished as follows:

- a) Restricted tender includes a pre-qualification phase aimed at ensuring the candidacy of qualified bidders with the technical expertise and financial resources required to fulfil its contractual obligations. This phase is particularly important because it allows the contracting authority to evaluate the "viability" of its project by considering the number and quality of applications from technical operators prevailing on the market.
- b) Establishment of competitive dialogue with pre-qualified bidders to identify and select technical, financial, and legal solutions that meet the needs of the public entity.
- c) This procedure was initiated because of the complexity of PPP projects, where the contracting entity is not objectively able to define the technical means to meet its needs and objectives or to establish the legal and/or financial structure of a project.
- d) Awarding of the contract according to a transparent procedure including objective and precise evaluation criteria as well as criteria for the elimination or rejection of offers.
- e) In cases where the urgency of the project is recognized, the traditional procurement procedure may be used under the conditions indicated above.

- a) The nature and the modalities of the constitution of the financial guarantee of tender as well as the conditions of the call-in guarantee by the public entity to be given by the tenderers, should also be specified.

Eligibility and processing of unsolicited offers

The criteria for evaluation and eligibility as well as the conditions for processing unsolicited offers should be clearly spelled out in the legislation and/or regulations of the Member States, taking into account the following elements:

Definition

A spontaneous offer can be described as a proposal submitted to a contracting authority by a private individual or legal entity with a view to carrying out a project which falls within the sphere of competence of the public entity and which has not been the subject of a public call for competition. In the framework of a partnership project, the project must be of general interest and likely to be carried out within the framework of a PPP.

Eligibility Criteria

The eligibility criteria for the submission of an unsolicited bid should allow any private entity (natural or legal, including a group of companies) to submit an unsolicited bid to a contracting authority for the implementation of a partnership project.

Admission criteria

The following criteria should be considered:

- a) The contracting authority has not previously stated its intention to carry out the project which is the subject of the unsolicited bid. If the government has considered initiating a procurement procedure for the project thus submitted, it will be up to the contracting authority to draw up the terms of reference and other specifications for the said project in accordance with the applicable PPP regulations and public procurement legislation;
- b) The spontaneous offer should be accompanied by a technical and economic feasibility study, an environmental and social impact study and any other information that would allow a precise assessment of the project's characteristics;
- c) These studies must be conducted at the offeror's expense;
- d) The offer must meet the needs of the public entity that it has defined itself.

3. Obligation of competitive offer

- a) All spontaneous offers should be subject to a competitive procedure to ensure that the PPP contract is awarded to the most economically advantageous offer, in accordance with the principle of the optimization of public procurement. The PPP regulations should rule out any negotiated or direct bidding procedure in the context of a spontaneous bid for a partnership project.
- b) If the spontaneous offer is judged admissible by the competent authority of the Member State, the latter shall organize a tender procedure in accordance with the law applicable to public procurement and/or the award of partnership contracts according to the procurement procedures authorized for PPP projects.

Obligation of confidentiality and protection of intellectual property rights of the offeror

The contracting authority and other institutions involved in the evaluation process of an unsolicited bid must ensure the protection of patents or other innovative concepts owned or licensed by the offeror. They should only use documentation or information related to these innovative processes in the context of the evaluation of the offer, unless the author gives his consent for these to be disclosed. These institutions must therefore have the necessary resources and capacity to ensure this protection.

Modalities of compensation of the author of the spontaneous offer

The justification for granting compensation to the spontaneous offered should be based on the characteristics of the proposal submitted to the contracting authority with regard, in particular, to its innovative character. This may consist, for example, in the introduction of a new technology, process or technical concept or the provision of a new service.

The bonus granted may not exceed a certain percentage of the development costs estimated by the initiator of the offer.

Compensation procedure for the spontaneous offered

The private entity that submits an unsolicited bid that is deemed responsive will be eligible for a bonus when evaluating the bids submitted by the candidates. This bonus will be evaluated by the competent authority as defined in the applicable regulations.

In the event that the bid is not successful in the offer process, the spontaneous offered may be compensated for the studies performed in support of the offer.

This compensation may be paid by the recipient of the partnership contract.

Content of the PPP contract ("minimum requirements"):

While it is recognised that the harmonised regulatory framework should be sufficiently flexible to allow the parties to adapt the terms of the contract to the agreed financing structure and risk allocation between them, the principles that should govern the execution of the partnership contract as well as the clauses that must be included in the contract should be clearly defined in the legislation. These clauses should cover the following points:

Preconditions for entry into force

The conditions that must be met for the performance of the parties' contractual obligations and the start of the contractual deadlines should be specified. These should include the approval of the competent authorities, the obtaining of the various permits, licences and authorisations, the provision of guarantees and financing and all the elements necessary for the start of the contract.

The conditions under which the execution of the contract can start before the finalisation of the financing agreements or when the conditions for entry into force are not met should also be specified.

Duration of the contract

The duration of the partnership contract, the terms of its extension and the conditions for transferring the works, assets and equipment from the private partner to the administration, if applicable, must be laid down.

These provisions are particularly important because they condition the transfer at the end of the contract of the works and equipment whose design and/or construction and operation have been delegated.

Purpose of the contract and division of responsibilities between the parties

The nature of the tasks devolved to each of the parties and the terms and conditions for their execution must also be specified in the partnership contract.

The conditions of operation of the delegated service (responsibilities of the delegatee, methods of execution and delivery of the service, form and nature of the delegatee's relations with users) concerning service contracts including the management of the operation of the facility, the upkeep

and maintenance of the equipment and infrastructure or Public Service Delegation (Lease contract, Concession, BOT) must also be clearly defined.

Terms of remuneration of the private operator

These should specify the conditions under which the private partner is paid, the elements to be taken into account in calculating its remuneration (investment costs (CAPEX), operating costs (OPEX), financing), and the terms of payment (due date, default interest).

- a) The conditions for reviewing and adjusting the remuneration of the private co-contractor (frequency, calculation elements and indexation method),
- b) The conditions for granting an adjustment in the event of economic conditions jeopardising the economic and financial balance of the contract,
- c) The financial conditions (tariffs, indexation formula, deadlines for payment of revenue by the delegates to the delegator, deadlines for payments by the delegator to the delegatee, tax clauses).

Performance and availability targets

The objectives to which the private operator is subject and which are linked to its remuneration should be specified with the possibility of adjustments and modifications according to predefined deadlines (see review and meeting clause below).

Nature of securities and guarantees

The nature and conditions of implementation of the securities and guarantees that may be required by the lenders, including private banks and insurers, must be clearly specified in the contract, as they are crucial to the financial viability of the project and the sustainability of the contract.

The nature of the guarantees that may be granted by the state or any other public entity authorised to enter into partnerships, as well as the conditions for their establishment, should be the subject of a specific provision in the PPP law, in accordance with the legislation on public ownership.

It is important to note that the legality of floating charges, which consist of pledging future assets or revenues, is not unanimously accepted by practitioners and is not recognised by all ECOWAS jurisdictions.

The modalities of termination of the contract - Requirement to maintain the continuity and quality of the public service

The consequences of a default by the holder of a partnership contract and the conditions under which the contracting authority may unilaterally terminate the contract and assign it to a third party in order to organise the continuity and quality of the public service should be provided for.

Similarly, provision should be made for calculating the compensation and indemnities due to each of the parties in the event of default, and in particular in relation to the obligations towards the lenders

Contract supervision procedure

The conditions allowing the public authority to carry out periodic audits on compliance with the performance objectives and the conditions under which the contract is performed and, more generally, the control of all technical and accounting elements contributing to the management of the delegated public service must be precisely defined in the contract.

The performance objectives that must be respected concern in particular the objectives in terms of sustainable development as well as the conditions under which the co-contractor calls on other companies to carry out the partnership contract and in particular the conditions under which it respects its commitment to award part of the contract to small and medium-sized enterprises and national or regional craftsmen.

Compliance with applicable laws

The private partner must comply with the laws relating to public health and safety, the environment, labour law and technical standards in force in the host country.

Meeting/renegotiation clause

The principles governing the conditions for renegotiation of the contract within fixed deadlines should be determined in detail with a view to preserving the economic equilibrium of the contract, so as not to compromise the continuity and quality of the public service.

Dispute settlement mechanisms

The procedures for settling disputes between the parties must be the subject of a contractual clause allowing for the amicable resolution of disputes, providing for the possibility of calling on qualified conciliators or mediators to resolve technical, economic or financial problems.

The procedure for appointing a joint expert to hear the dispute, the powers granted to him/her for its resolution and the enforceability of his/her decision should also be clearly established in the contract.

Contract audit and supervision arrangements

The conditions under which the concessioning entity will audit the accounts and supervise the proper performance of the contract are decisive and should be the subject not only of a specific clause indicating the procedure, the documents and information to be provided, the timetable for performance, and the possible intervention of external experts, but also of a regulatory provision describing the modalities of supervision either by the contracting authority for the public entity or by the regulatory authority, as the case may be.

Section 2: Review and Policy Proposal for Improving the Legal Framework for PPPs in the Power Sector in Member Countries

Introduction:

The following proposed recommendations aim at strengthening and harmonizing the institutional and legal framework of ECOWAS Member States and that of the regional area, particularly with regard to cross-border projects.

Institutional Strengthening: Establishment of a Regional PPP Unit

Member States commit to consider the creation of a public-private partnership (PPP) centre of expertise specifically dedicated to the evaluation, procurement, and implementation of PPP projects in the power sector, including renewable energy projects, and the supervision of regional energy PPPs under the auspices of ERERA.

This regional administrative body, which may be called "Regional Unit for the Development of Public-Private Energy Partnership Projects", will be responsible for assisting public authorities in the development and implementation of PPP energy projects and for drawing up procedures applicable to the development cycle of these projects both at the regional level and within the Member States.

Main objectives of Establishing a Regional PPP Unit

The pooling of technical resources through the creation of such an organization is necessary to achieve the level of technical expertise required to develop projects whose legal and financial set-up

is complex and must meet numerous environmental and social requirements. The creation of such an institution also aims to contribute to regional legal integration in the energy sector and to improve the exchange of information between Member States on planned projects. Shared expertise between Member States, but also between the public and private sectors, is indeed the best way to achieve common rules of the game, the objective being to foster a dynamic of co-regulation to build the core of the harmonized legal framework.

Mission of the regional PPP unit

The fields of intervention of this regional unit are the following:

- a) The assistance of the contracting authorities of the Member States at all stages of a partnership project and particularly during:
 - Preliminary evaluation of the partnership project;
 - Selection of the co-contractor;
 - Negotiation of the partnership contract;
 - The execution of the partnership contract;
 - The possible renegotiation of the terms of the partnership contract;
 - Monitoring and auditing of partnership contracts.
- b) The development of manuals of procedures and best practices for the procurement, execution, and monitoring of partnership contracts.

Establishment of a functioning and independent electricity sector regulatory system with effective oversight and performance mechanisms

Introduction

The establishment of a public body in charge of regulating the sector in each Member State responds to the need to ensure transparency and independence in the supervision and control by this institution of the activities of public and private actors operating in the sector, as well as free competition between operators in order to ensure that the population has access to a public service that is of high quality, reliable, equitable and sustainable, and at a reasonable price, in accordance with the principles laid down in the ECOWAS instruments.

Main tasks entrusted to the electricity regulator

The Regulatory Authority is an independent body with legal personality and financial autonomy. It is entrusted with :

- a) a mission to carry out and control the public electricity service
- b) to advise the public authorities on the organisation and operation of the electricity market
- c) a general task of monitoring and controlling compliance with the relevant laws and regulations.

Within the framework of these multiple and varied missions, regulation must ensure the following main functions:

Economic regulation

- a) Establishment of effective competition between the various economic actors in the electricity sector, excluding any monopoly or abuse of dominant position while respecting public service obligations and constraints (exclusivity and non-competition);
- b) Ensuring the competitiveness of the sector by granting producers and sellers fair, non-discriminatory and transparent conditions of access and exercise of their activities;
- c) Determining the tariffs applicable in the energy sector, as well as the mechanisms for their revision and indexation.

Tariff regulation

- a) The electricity regulatory authorities of the Member States shall:
 - To regulate the tariffs for electric energy generated, transported, distributed, marketed or transited in their national territory, in accordance with the principles and procedures set forth in the tariff methodologies adopted by ERERA; or
 - Define the billing methodology or bases applicable to the tariffs for access to and use of the electricity network;
 - Approve the prices of connections and other services to consumers.
- b) The Regulatory Authority shall transmit its proposals for regulated tariffs on its own initiative and its decision shall be deemed to have been taken in the absence of opposition from any of the Ministers within a period of three (3) months following receipt of its proposals.

Such tariff regulation and adjustments shall be determined in a transparent manner and shall be published by the competent authorities of the Member States.

- A technical, economic, financial and legal feasibility study;
- An environmental and social impact study;
- A study of the costs and benefits expected by the public entity;

- A study of budgetary sustainability.

With the exception of projects submitted as unsolicited bids, the above studies are carried out by the contracting authority.

The above-mentioned feasibility study must show not only the economic, technical, financial, legal, social and administrative issues that lead the contracting authority to initiate the procedure for awarding such a contract, but also a comparative analysis of the different options, particularly in terms of overall cost, risk sharing and performance, as well as an analysis of the consequences and measures for mitigating the environmental effects of such a project and its impact in terms of GDP growth, poverty reduction and sustainable development.

Legal regulation

- a) Determining the terms of public service delegation agreements, including public-private partnership (PPP) contracts;
- b) Conducting monitoring of compliance with regulations and agreements between the public entity and private operators;
- c) Arbitrating between the respective interests of private operators, public authorities, contracting authorities and users in accordance with the law in force;
- d) To control the respect by public and private operators of the public service obligations as described in the present Code.
- e) Investigate complaints and appeals from operators, network users and customers;
- f) Organise any prior consultations relating to its decisions;
- g) Determining administrative sanctions for non-compliance with rules or standards and compensation payable to consumers;
- h) Guarantee the effective independence of network operators; to this end, the regulator shall :
 - issue an opinion on the terms of reference of the transmission system operator
 - publish an annual report on compliance with the principle of independence applicable to all system operators
 - approves the list of network operators' managers;
 - performs a monitoring and surveillance function by exercising its investigative and sanctioning powers to prevent any discrimination or hindrance to competition

Technical regulation

The Regulatory Authority shall have the power to:

- a) Monitor the application of technical regulations, health, safety and environmental protection conditions;
- b) Establish and update, in collaboration with the network operators, the requirements for electricity production facilities;
- c) Approving the development plans for electricity transmission networks submitted by the network operators and monitoring their implementation;
- d) To examine applications and issue authorisations for the construction and operation of new electricity generation and transmission facilities, including direct electricity lines; it shall monitor compliance with the authorisations issued;
- e) To ensure the proper functioning and development of the electricity networks and infrastructures in the sense of making the investments necessary for the proper development of the said networks

Principle of independence of the regulatory authority

General principle

The Member States undertake to:

- Guarantee the independence of the regulatory authority in order to manage the provision of the Public Electricity Service in a transparent, neutral and fair manner
- Protect the regulatory authorities from political interference.

Regulatory Independence

Member States shall ensure that the regulatory authority has the power to decide on the definition of principles, standards and procedures in the context of its regulatory mission.

Financial independence

The Member States undertake to guarantee the financial independence of the regulatory authority to enable it to exercise control over its own financial resources and to have the capacity to benefit from a stable and adequate source of funding.

Organizational independence

Member States shall ensure that the regulatory authority has the power to decide on:

- The appointment of its members, which shall be done through an open and transparent tender.
- The appointment of its members to the various positions of responsibility, which must be carried out through open and transparent tendering.