



REGULATORY STUDIES – LOT 2

ACTIVITY 3: DEVELOPMENT OF ACCESS RULES TO THE REGIONAL GRID BY ELIGIBLE CUSTOMERS

REPORT 3: DESCRIPTION OF ACTIONS TO BE IMPLEMENTED TO PREPARE NETWORK ACCESS – PART ONE

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LIST OF ABBREVIATIONS AND DEFINITIONS

ACSP	Agent commercial du Service public/ Public Service Commercial Agent
ECOWAS	Economic Community of West African States
ERERA	ECOWAS Regional Electricity Regulatory Authority
ICC	West African Power Pool (WAPP) Information and Coordination Centre – body in charge of daily information-sharing between research centres
IPP	Independant Power Producer/ Producteur d'énergie Indépendant
OM	Open Market Organizer
OLS	Open Limited Service
OMVG	Organisation for the Development of the Gambia River
OMVS	Organisation for the Development of the Senegal River
PPA	Power Purchase Agreement/ Contrat de fourniture d'énergie
PU	Public Utility
PTS	Public Transmission System
PTSO	Public Electricity Transmission System Operator
SCADA	Supervisory Control and Data Acquisition
SO	System Operator
System Services	System services generally comprise load-frequency control including keeping reserves, voltage control, black starting and compensation of for differences
WAPP/EEEOA	West African Power Pool/ Echanges d'Energie Electrique Ouest Africain

1 INTRODUCTION

This is the first volume of Report 3 relating to the mission to ERERA on the establishment, in various ECOWAS countries, of access to the regional electricity network for a limited number of customers (eligible customers) wanting to tap electricity from producers authorized to directly negotiate the sale of the energy they generate.

After examining the conditions of the electricity sector in the various ECOWAS countries (report 1), it was suggested (report 2) to establish a limited access in some countries by introducing a limited open 'market' coexisting with a regulated market.

Report 2 also described the main characteristics of this evolving organization and drew up an inventory of actions to be undertaken in the sector to help implement it.

The terms of reference also require that proposals be made with regard to the organization of opening access to the network.

Access to the network means bringing about significant changes in the sector's entire structure and, very conventionally, these changes are particularly considerable at the level of the Transmission System Operator.

That explains why proposals on how to organize this opening (Report 3) are displayed in 2 volumes.

This first volume gives the major guidelines of the new **organization to be established at the level of the Transmission System Operator**, hub of the new organization. It also gives the **structure of a Network Code**, which is the pivotal document for coordinating all stakeholders who will be using this network to carry out their transactions in a partially liberalized environment.

The second volume of report 3 will develop the main activities to be carried out to adapt the sector and to allow limited access to the network, with a view to progressively increasing it, that is to say allowing a growing number of users to directly sell to one another.

Before describing the new PTSO organization, the following of its characteristics are to be highlighted:

- ✓ Developing new roles within the PTSO must help regulate exchanges in a coordinated, non-discriminatory and economically satisfactory manner.
- ✓ The suggested organization identifies, within the PTSO, the various activities relevant to the functioning of a multi-player system bound by contracts, instead of one not vertically merged. The following description concerns the stage when the open market already allows short-term transactions, besides bilateral contracts.
- ✓ The activities are grouped together into five independent entities placed under the responsibility of a Public Transmission System Operator (PTSO). Such entities are as follows:
 1. The Public Service Commercial Agent (ACSP)
 2. The open market organizer (MO)
 3. The generation – transmission system control (OS),
 4. Counting and Operations financial management (Administration),
 5. Transmission system maintenance.
- ✓ This model, which is particularly of use for a better operating of computer and telecommunication systems associated with generation and transmission control centres, has the advantage of being relatively less costly in its functioning.

- ✓ With the progressive opening of access to the network, the role of the public service commercial agent will become less crucial and even disappear when all the customers become eligible. Conversely, the role of the Market Organizer, which is basic in the case of physical bilateral contracts, will become more complex with an increase in the number of stakeholders and types of possible transactions. Hence, at a given time, the MO will become a legally entity separated from the PTSO. Thus, there will be needs for instruction manual adjustments and, where necessary, organizational ones, each time transaction opportunities evolve.

2 COMPETENCES OF THE PUBLIC TRANSMISSION SYSTEM OPERATOR

2.1 General Provisions

This chapter describes the main competences that enable the PTSO to organize generation and transmission means in order to meet customer demand. These competences are organized into five entities:

- a) The Public Service Commercial Agent (ACSP),
- b) The open market organizer (MO),
- c) The generation - transmission system control (OS),
- d) Counting and PTSO financial management (Administration),
- e) Transmission system maintenance.

To carry out the tasks without discrimination and to ensure transparency in PTSO decisions, these major competences are organized independently from one another.

2.1.1 Rules of conduct

The PTSO is legally and functionally independent from any generation and distribution activity.

In its tasks, it must comply with the rules of conduct guided by the following principles:

- a) Equal treatment of operators and customers,
- b) Respect of the general interest,
- c) Coexistence of PU and SO, and optimization of gains resulting from a joint technical operating of PU, SO and interconnections,
- d) Transparent decisions through information and audit procedures.

2.1.2 Rules of Confidentiality

The PTSO must prepare confidentiality rules for each of the competences it is entrusted with. These rules must specify the principles to be followed by officials with regard to independence, impartiality, confidentiality and responsibility.

The PTSO must submit these rules to the prior approval of the national Regulator, upon which it is incumbent to approve the list of sensitive information to be gathered from operators by the PTSO.

It must organize access and circulation of sensitive information among staff using it in the discharge of their missions, by introducing internal control mechanisms likely to offset risks of discriminatory practices while accessing the PTS.

2.1.3 System security and service quality

System security and service quality are defined in an annex to the PTS concession contract and specified in the manual laying down the conditions of access to the PTS and interconnections, in compliance with the regional (WAPP OSMP) and international rules in force.

These rules are placed by the PTSO at the disposal of any person concerned.

2.1.4 Dispatching, information and communication system

The term “dispatching” covers the following three PTSO competences :

- a) Control of the generation – transmission system (SO),
- b) Public Service Commercial Agent (ACSP),
- c) Open market organizer (MO),

These three roles are developed following appropriate safety and service quality specifications, combining the acquisition, exchange and processing of data, from planning to counting. Dispatching information is shared among the various services in charge of these roles within the PTSO and with generation and distribution operators, the control centres of interconnected countries via a telecommunication system with private connections leased to accredited operators.

The PTSO must make available to the Public Service Commercial Agent (ACSP) the basic computer and telecommunication means it needs to carry out its tasks. Its system of protecting information includes the Public Service Commercial Agent (ACSP) data and information protection.

The PTSO must also provide the MO with the basic computer and telecommunication means it needs.

2.1.5 Consultation of market players

The PTSO designs procedures' manuals defined hereafter, after seeking the opinions of the market players. It later submits them to the national Regulator for approval.

2.1.6 PTS and system services' use pricing

All the services provided by the PTSO to market players are subject to pricing, which covers:

- a) The PTSO expenses (ACSP, MO, SO, Administration, structure operation), including financial expenses, liquidation of fixed assets and proceeds from equity,
- b) Expenses from the acquisition of system services that are not charged to an individual user.

The expenses to be recovered through tariffs and the tariff calculation method must be laid down by decree. They include the price to pay for transmission using the OMVS, OMVG and equivalent systems.

The tariff is fixed based on several components.

A “management” or “marketing” component includes management of the access contract, counting (equipment reading and renting/maintenance), billing and recovery.

The pricing formula for the network use is binomial, with:

- A fixed term depending on the power and corresponding to the capital cost, most system services costs, and operation and maintenance costs;
- A proportional term recovering the cost of transmission and distribution losses estimated on the basis of networks' simulations and other expenses, such as guaranteed tariff from renewable energies production.

This method helps index tariffs depending on costs trends.

The payment of the transmission tariff is taken over by the customers at delivery taps. The pricing structure depends on connection voltage and on the power subscribed to, while likely complying with the rules that allow for power accumulation at different delivery taps.

Lastly, penalties may be imposed where applicable, for surpassing power capacity and for excessive consuming of reactive energy.

The PTSO must submit to the national Regulator tariff adjustment proposals as per the provisions of the decree.

2.1.7 Concession control by the national Regulator

The national Regulator can carry out audits to the PTSO at any time in order to ensure that the rules are properly applied, notably confidentiality rules, and procedure manuals.

The public transmission system concession holder contributes to the smooth auditing activities.

The national Regulator sends interim audit reports to the PTSO for comments.

2.1.8 Claims and Disputes settlement

2.1.8.1 Claims

Market players may present claims against PTSO actions and omissions to the national Regulator of claims.

The claims may relate to the fulfilment of PTSO's missions and to the compliance with its obligations.

Market players may ask the national Regulator to give its opinion on the interpretation of rules and on their implementation by the PTSO.

However, concerning two independent bodies, some countries included in their laws that the PTSO is not obliged to take the opinions given by the national Regulator in some areas.

Also, to avoid a dispute between the PTSO and the national Regulator, the role of the latter is supposed to be limited to validating rules and ensuring that they are well implemented in case of dispute between the PTSO and one of the market players.

The instruments will thus specify the areas in which the national Regulator could give opinions.

2.1.8.2 Settlement of Disputes

Disputes that arise during contracts concluded between market players are settled through arbitration prior to any appeal before the competent court, under the authority of the national Regulator.

2.2 Competences of the Public Service Commercial Agent (ACSP)

2.2.1 Missions

ACSP provides the following public utility services:

- a) Drawing up and updating the public utility operating programme through purchase agreements with the historical operator, long term purchase agreements (PPA), statements pertaining to the availability of producers and customer consumption projections ;
- b) Exchanges with the open market : electricity and service systems purchases and sells to open market producers and / or operators of neighbouring countries via interconnection lines;
- c) Management of relating agreements.

2.2.2 Procedures' manual

A procedures' manual describes the fulfilment of the following tasks:

- a) Terms and conditions of instituting operating programs for PU,
- b) List of information details relevant to the institution of a PU program,
- c) List of information details and criteria for instituting a scheduled annual maintenance program,
- d) General conditions for awarding emergency contracts to OLS members,
- e) Procedures of collection, storage and access to gathered information,
- f) Used information system functional specifications,
- g) Provisions guaranteeing the confidentiality of sensitive information.

The national Regulator approves the procedures' manual and its revisions.

The manual is public and applicable to all mentioned market players, notably the provision of information relating to the use and coordination of unavailability.

2.2.3 Contracts' Management

The ACSP negotiates and manages the following categories of agreement:

- a) PPA (producers related to PU),
- b) Sales contracts to public distribution system operators,
- c) Purchase contracts from special regime producers (renewable energies, co-generation, etc.),
- d) Voluntary interruption contracts,

- e) Emergency supply contracts.

It manages the processes upon expiry of concessions and production BOT.

2.2.4 PU Operating Program

The PU operating program determines with different timelines the values of energy and power to be produced by the various production units, as well as cross-border exchanges to meet demand while complying with the required safety and quality criteria at the lower price..

The Public Service Commercial Agent (ACSP) sets out the operating program from the following assessments:

- a) The operating costs and the annual, monthly, weekly and daily yield of production units set under the responsibility of the PTSO,
- b) Classification in order of merit of production units for the future,
- c) Possible needs of interruptible power,
- d) Reserves to satisfy emergency contract,
- e) The scheduled annual maintenance program of production units,
- f) Projected fuel needs for production units.

The operating program provides:

- a) a classification of production units according to merit, considering primary and secondary adjustment needs,
- b) the quantities and prices of available energy for sale outside the PU,
- c) the quantities of PU energy that can be substituted under conditions of interesting prices by purchases from OLS or imports,
- d) the volume of interruptible power contracts to be signed between the PTSO (OS) and PU customers,
- e) the volume of emergency supply contracts to be signed with OLM customers
- f) useful elements for the control of the system's safety conditions by the SO,
- g) compliance with environmental or similar conditions (upstream dam turnover, CO2 emissions, etc.).

2.2.5 Exchanges with the open market

From the public utilities operating plan, the Public Service Commercial Agent (ACSP) can send out bids for the purchase and sale of energy, systems services to the MO and to authorised operators in interconnected border countries.

These bids could be daily, to be included in the programme of the MO, or bilateral contracts with a specific maximum duration, after the approval of the National Regulator.

The Public Service Commercial Agent (ACSP) adapts its generation programme and its classification in order of importance depending on approved bids.

The ACSP abides by the MO procedures' manual in its business transactions with the latter.

2.2.6 Standby contracts

When the free producers are few and the services offered on the free market are limited, it is important to reduce the high warranty imposed on each free producer for continuous supply (high reserve rates), whose accumulation could be costly.

Thus, the ACSP rents part of the power released by PU to ensure standby contracts for free producers who wish to have them.

2.2.7 Storage and circulation of information

The ACSP keeps information collected and produced within its remits over a minimum period of five years after their acquisition.

It provides the following pieces of information to any interested persons:

- a) the yearly programmed maintenance plan,
- b) the daily operating programme of PU.

2.3 Competences of the Open Market Organizer (MO)

2.3.1 Missions

The MO organizes trading links between public utilities, independent producers, eligible customers and operators (producers and customers) of interconnected border countries. It is particularly in charge of:

- a) defining conditions of balance between bids for the sale and purchase of energy and system services coming from the different operators in the open market;
- b) selecting proposals that facilitate exchanges (contracts) and transmitting the necessary items to the SO, who includes them in the technical validation process of the generation - transmission programme;
- c) publishing short-term purchase and sales bids for all operators so as to facilitate the signing of short-term contracts;
- d) centralising and updating physical information on bilateral contracts and forwarding the said information to the SO.

2.3.2 Guidelines' Manual

The guidelines' manual of the MO specifies:

- a) The conditions for becoming a market player,
- b) The provisions for obtaining, suspending and terminating the market access contract,
- c) The products that are likely to be the subject of contracts needing access to the network,
- d) The methods of presenting purchase and sales bids (presentation deadlines, supply periods, etc.),
- e) The specifications of energy purchase and sales bids,

- f) The method of adjusting bids, taking losses into consideration,
- g) The frequency and method of calculating the balance between purchase and sale,
- h) The transmission of the open market exchange programme to the SO and to market players,
- i) Communication with the MOs of the interconnected countries,
- j) Warranties to be supplied by market players, including reviewing their rates,
- k) Payment deadlines for operators,
- l) Actions to be taken in exceptional cases,
- m) Information to be forwarded to market players,
- n) Confidentiality measures and guarantees in keeping sensitive information,
- o) Functional specifications of the information system.

The specificities especially describe the flow of information between the personnel in charge of carrying out the different activities of the PTSO and determine which portion of the information is to be recorded and stored.

2.3.3 Registration of an open market player

The MO registers an open market player after verifying the conditions for their membership. It signs an access contract with the latter and then notifies the National Regulatory Body of any rejected cases of market players seeking to be registered.

2.3.4 Purchase and sales bid balance in the open market

2.3.4.1 Types of contracts

Energy and system services can be exchanged in the open market based on two types of contracts:

- a) daily bids submitted to the MO and which meet the balance conditions between purchase and sales,
- b) bilateral contracts with physical deliveries.

2.3.4.2 Equilibrium Price

Equilibrium price is the maximum sales price, which is greater than or equal to the minimum purchase price for the maximum quantity of energy exchanged.

Bilateral contracts are not included in determining balance price.

2.3.4.3 Cross-border exchanges¹

The methods for publishing and considering cross-border exchange bids are jointly approved by the PTSO and PTSOs of interconnected border countries or entities, while respecting its functioning. The SO of each of the countries evaluates and publishes the net available capacities for trade on interconnected networks. The evaluation methods should follow the access rules of interconnections and applicable international laws.

Subject to these provisions, the MO records cross-border bilateral contracts and considers them as national contracts.

2.3.4.4 Daily contractual exchange programme

Based on its balance calculation per half hour, the MO draws up the daily contractual exchange programme and informs each operator concerned of the approval of their bids for the next day.

2.3.4.5 Payments and warranties

Based on the contractual programme and prices offered per half hour, the MO calculates the amounts corresponding to the contractual programme and forwards the results to the operators concerned.

Equivalent payment is made within the deadline stipulated in the guidelines manual of the MO. They are temporary until the approval of the metering of the energy really supplied, by the "Administration", which counts the transactions and ensures that they are settled.

Buyers in the free market are required to provide the PTSO with the warranties mentioned in the guidelines manual of the MO, which cover all the transactions in which they are involved. The MO brings in the warranty in case an actor in the market fails to pay for the transactions in the market. Otherwise, the MO could suspend or terminate the contract in case of non payment.

2.3.4.6 Treatment of variations

Variations are recorded when the difference between contractual exchanges and those noticed each half hour is higher than the margin fixed in the guidelines' manual of the SO.

The variation valuation method and the subsequent associated penalties are presented below (cf. section 3.5.5).

The Administrator informs the MO of the value of the variations noticed for each free market player.

2.3.4.7 Exceptional situations

Exceptional situations are those that do not permit to implement the bids approval process or the equilibrium price setting process.

They could be as a result of the absence of sales bids, a fault in the computer system or the telecommunication means of the MO, or force majeure.

¹ Short-term cross-border contracts which require market merging between the two interconnected countries emanate from the limited free market system.

2.3.5 Recording and dissemination of information

2.3.5.1 Recording of information

The MO progressively records all information and data leading to decisions taken within the framework of its duties, thus making it possible, among other things, to ensure that the decisions are in conformity with the principles presented in chapter 3.2 above. The information is stored for at least five years.

Consequently, the MO records:

- a) The electricity purchase and sales bids received, as well as system services, with the name, date and time of reception,
- b) The partial results of balance calculations with the date and time it was forwarded to the SO,
- c) Restrictions imposed by the SO,
- d) The daily contractual programmes with their equilibrium prices, alongside the date and time they were forwarded to the market operators,
- e) The annual reports describing the market activity,
- f) Data that make it possible to quantify the exchanges carried out under bilateral contracts.

2.3.5.2 Information accessible to market players

The MO daily forwards the following information to market players:

- a) Acknowledgement of receipt of the bid,
- b) The approval of the bid and its inclusion in the contractual program.

It gives periodic access to market players to a range of information so as to enable them to check their calculations in determining the equilibrium price:

- a) Unidentifiable purchase and sales bids,
- b) Equilibrium price,
- c) Market price,
- d) exchange programs from the market,
- e) possible restrictions imposed by the SO.

The operators undertake not to disclose the information they therefore gather. All requests for information or clarification, involving the disclosure of information inaccessible to the public, should first of all be authorized by the National Regulator.

2.4 Role of the System Operator (SO)

2.4.1 Missions

The SO of the PTSO coordinates the actions of all operators linked to the PTS so as to ensure the provision of services consistent with the desired standards of security and quality.

Its main roles are:

2.4.1.1 Coordinating unavailability of facilities

The SO draws up a comprehensive program of generation and transmission facilities' unavailability at the request of Public Service Commercial Agent (ACSP), of the MO and of the other PTSOs from interconnected cross-border countries. They then make adjustments depending on the events.

2.4.1.2 Operating program

Based on the daily programs drawn up by ACSP and the MO, as well as actual bilateral contracts, the SO draws up the daily operating program in accordance with security rules. It then makes adjustments depending on the events.

2.4.1.3 System service management

The SO prepares the yearly program for the system services' needs. It prepares system service supply contracts with operators of PU and OLS, selected in a transparent manner.

It makes successive adjustments on the operating program, with the help of one of the system services, once the SO notices that the security conditions in the system are not met. For example, it could temporarily mobilize quick reserves.

2.4.1.4 System operation in real time

The SO constantly checks the generation - transmission system, analyses its security, gives orders based on the checks and forwards them to the operators for execution so as to match the system to the desired quality and security conditions.

The SO orders operations and takes ad hoc measures to address situations resulting from unexpected incidents that occur in the system.

Load monitoring, be it automatic or ordered by the SO, is used to keep the system running in case of exceptional incidents that were not included in the normal analysis criteria of the security system.

2.4.2 Guidelines manual

The guidelines manual of the SO completes the provisions of the network code, including provisions at the regional level (WAPP). It defines:

- a) the adjustment process for technical reasons and the approval of the generation program prepared by ACSP and the MO,
- b) the procedures and terms of acquiring system services, mainly the secondary reserve and voltage support,
- c) the procedures and methods of information exchange with all the national and foreign operators linked to PTS,
- d) Actions to be taken collectively and individually by each operator under its supervision in case of major failures in the system, including the resumption of service following the collapse of the system,
- e) conditions under which automatic power cuts are allowed,
- f) exceptional cases that could cause an operator to ignore an order from the SO.

The manual is approved by the National Regulator and kept at the disposal of everyone concerned depending on their activities.

2.4.3 Information system

The PTSO is in charge of creating, adapting and maintaining the working order of the equipment, software and telecommunications means needed for managing and checking the functioning of the information system, as well as its internal and external protection against any intrusion.

2.4.4 Access to the facilities of operators linked to PTS

The SO can access the facilities of operators linked to PTS for maintenance work on their equipment, to check the characteristics of their facilities, to change the settings and to carry out tests.

2.4.5 Recording and dissemination of information

2.4.5.1 The recording of information

The SO progressively records every communication. It updates a register containing the following information relating to the use of the system, which is stored for at least five years:

- a) The daily operating report,
- b) A list of orders from the control centre,
- c) Availability reports,
- d) Reports of available power per generation group,
- e) Reports of unavailability and modification of unavailability,
- f) The annual unavailability program,
- g) Detailed generation and withdrawals (energy and power) statistics,
- h) Detailed statistics on cross-border exchanges,
- i) Annual hydraulic characteristics and their evolution.

At the request of the National Regulator, the SO forwards a detailed report justifying the steps taken in case of the following occurrences:

- a) Manual power cut,
- b) Reduction of charges within the framework of contracts with a clause on interruptibility,
- c) Modification of unavailability reports,
- d) Repeated modifications of daily operating plans and constant amendments of bilateral contracts.

The SO publishes reports on the system operation weekly and monthly.

2.4.5.2 Information accessible to market players

The SO puts the following information at the disposal of market players:

- a) The daily operation report, including the programmed or effective load curves,
- b) Technical restrictions affecting operation,
- c) The causes and consequences of incidents on PTS,
- d) The commissioning of new generation and transmission equipment.

2.5 Role of the Administration

2.5.1 Missions

The Administration in the PTSO is in charge of:

- a) recording and updating the data of users on the network;
- b) the coordination and approval of measurements and metering;
- c) the valuation and management of financial flows from variations between actual and expected consumptions, as well as changes on the program for technical reasons;
- d) billing, or collecting, from the operators, amounts resulting from the application of transmission charges.

2.5.2 Guidelines manual

The guidelines manual of the Administration specifies:

- a) the documents needed to request for access to PTS,
- b) information to be sent to the Administration to enable it to certify the data on energy exchanges between the users of PTS,
- c) the tolerance margin of variations without penalties,
- d) the method of valuation of variations,
- e) the method of valuation of changes in the programme for technical reasons and payment deadlines by the Administration,
- f) deadlines in transmitting information to the Administration and from the Administration to market players.

2.5.3 Recording information

The Administration progressively records all information forwarded by users of the PTS. It keeps access contracts to PTS. This information is used to settle disputes between market players.

2.5.4 Coordination and approval of meterings

The Administration approves the volume of exchanges per half hour, which is used for the final calculations between the operators.

The Administration checks and approves the list of distant reading measures from the SO and the automatic management of meters by SCADA and all interesting metering.

The Administration collects and treats meter readings that were collected manually. When an eligible customer is supplied by MV generation, it agrees with the network operator on the inclusion methods of losses attributed to the eligible customer.

In the absence of measures, it approves the calculation methods suggested by the SO.

It includes the metering of different sites relating to the same supply contract, or many different contracts for the same supplier, in order to determine the variations in relation to the programme, considering the high consumption rates.

It ensures confidentiality of sensitive commercial information.

2.5.5 Treatment of deviations

The Administration determines the rights and obligations of the market players as a result of the deviations between programmed and actual flows. It bases itself especially on contracts signed by the SO to regulate the secondary and tertiary levels of the system.

The Administration conducts the billing and manages financial flows from the deviations,

It prepares comprehensive monthly bills for each operator and manages all corresponding financial transactions.

To minimise financial risk, it introduces a caution, whose amount is determined based on the access contract to the network.

Public distribution network operators have a common system to handle deviations.

2.5.6 Information accessible to market players

Users of PTS have access to information recorded by the Administration, except for access contracts.

The Administration publishes the daily amount of deviations recorded the previous day in the open market and the PU.

2.6 Role of the PTS Operation – maintenance of facilities

The operation of facilities is the role of PTSO that ensures:

- a) The operation and maintenance of PTS structures, from the access points on the network of generation plants and interconnections with border countries, to the delivery points of direct customers on the network and public distribution networks, including the maintenance of metering equipment of the control centre and the telecommunication network;
- b) Planning the development of PTS alongside that of distribution networks;
- c) Managing the reinforcement and extension projects of PTS.

The specifications of this mission, the operation procedures, the recording of and access to required information, are defined by PTSO according to the standard norms and rules of the profession.

3 MAJOR LINES OF A NETWORK CODE

This chapter presents the major lines of a public transmission network code applicable in Senegal and Mali. The purpose is to provide a general framework for preparing a network code for each country, which falls in line with earmarked reforms of a free market running alongside a regulated market.

It is presented in chapters as follows:

1. Applicable laws and regulations
2. Definitions
3. Rights and obligations of PTSO
4. Network development plan
5. Connection to the network
6. Operations on the network
7. System services
8. Operation program
9. System management
10. Measurements and metering
11. Information
12. Relationship between PTSO and distribution network operators
13. Cooperation between PTSOs of the adjustment zone
14. Treatment of complaints and settlement of disputes
15. Revision of the network code
16. Transitional provisions

Appendices (standard connection contract, coding of equipment, standard contracts for each category of system services, standard information form).

3.1 Review of regulations

This chapter shall dwell on:

- the applicable laws and regulations, as well as sub-regional and regional agreements (OMVS, OMVG, ECOWAS Protocol, WAPP regulations, etc.),
- those in charge of enforcing the network code,
- officials in charge of interpreting and checking its execution.

The provisions of the network code apply to all users of the public transmission network.

3.2 Definitions

The technical terms shall be defined. It is necessary for WAPP to publish a bilingual glossary (English and French) so as to institute a common jargon in the region.

3.3 Rights and Obligations of the PTSO

The following are the main obligations of the PTSO:

- Obligation to connect operators under condition of approval from the National Regulator except in rare cases (to be justified);
- Access obligation for third parties according to terms laid down by decree (eligibility threshold, etc);
- Neutrality and impartiality of operations;
- Guarantee of a stable and efficient functioning of the production – transmission system;
- maintaining and adapting the network so as to maintain or improve safe functioning;
- Planning the development of the network following the appropriate security and economic criteria.

The performance objectives of the system include: frequency excursion limits, slow voltage fluctuations, depth and frequency of voltage fluctuations, harmonic disruption levels, power fluctuation level (flicker), maximum interruption periods for programmed maintenance for sites where the (n-1) rule is not applicable, etc.

The PTSO can control the equipment of users in case they can influence the network operating, restrict the practices of users, for instance, ban operations that can endanger the system.

This chapter will comprise a section that presents the internal organization of the PTSO and will specify the impartial and confidential obligations associated with fulfilling these various missions.

3.4 Network Development Planning

PTSO annually drafts and updates a development plan of the public transmission network from observed demand characteristics and its predictable evolutions.

PTSO can conduct a study on clients and applicants. Deadlines for the provision of information can depend on the significance of the power demand.

PTSO submits the development plan to competent authorities for approval. It is responsible for the execution of projects within the required time including the procurement of funds. It drafts the development plan by implementing the following main rules and studies:

- choosing one or several security criteria : (n-1) rule or every rule adapted to the regional system , the reserve rate in production, etc.
- Studying safety margins ('load flow') of the voltage plan, of the short-circuit in various configurations of the network;
- Studying reliability by simulating the depth of incidents and evaluating non-supplied energy estimated from simple and multiple incidents whose frequency of occurrence is detected from historic series of the system operator. These simulations will equally provide the framework of operation codes for abnormal situations of the system;
- Studying static and dynamic stability by simulating the behaviour of every production unit as localized on the public transmission network functioning together in various system configurations;

These studies help to evaluate the static and dynamic stability and provide:

- short-circuit power levels for studies of new connections ;

- synchronism-disconnecting conditions for generators used for preventive disconnection of generators in some circumstances (type of incidents);
- Basic information for the selective and coordinate protection plan of the whole system.

In order to include the cross-border interconnections and obtain a complete analysis of the system at the regional level, it is important that the PTSO of border countries exchange useful information, at least, at the higher voltage level.

3.5 Connection to Network

Provisions for connecting to the public transmission network must help meet the new demands and ensure that connected clients have, at least, an equivalent quality of service.

3.5.1 Administrative Provisions

The administrative provisions describe the conditions for obtaining and modifying a connection and indicate the PTSO service charged with studying the demand and the signing of the connection contract (a standard contract is attached to the network code).

They present the necessary information, the registration procedure and update the land registry of connections.

3.5.2 Technical Requirements

General technical requirements define the physical limit between the equipments of users and those of the PTSO. They describe standard connection plans, the information to be provided to the PTSO by the applicant. A codification model of equipments to ease the management of land registry of connections is to be attached to the network code.

Supplementary technical requirements are used in the connection of a charge which is likely to provoke disruptions on the network. They characterize the disrupting charges:

Specific technical requirements describe the connection of a group of generation with minimal equipments and performances to be observed, eventually differentiated depending on the types of units:

- protections in case of internal and external shortcomings;
- guaranteed power levels within a certain period in abnormal functioning conditions (frequency deviations, abnormal voltage, etc);
- variation speed of injected power ;
- primary adjustment of the frequency : power level to participate or not in primary adjustment, dead band primary regulatory band and speed adjustment;
- secondary adjustment with the lowest speed and rhythm of variation;
- absorption of reactive power ;
- conditions for disconnecting network in case of incident ;
- functioning capacity in isolated network ;
- capacity to isolate (isolated functioning on own ancillary services);
- capacity to reboot without network assistance ;

- Information to use and provide to the PTISO in real time.

3.5.3 Connection terms

The connection of an applicant requires dialogue between the applicant and the PTISO in order to define its plan and specify the characteristics of standard and specific equipments as well as the modalities for making of the connection.

The connection terms define the types of tests to be conducted before implementing industrial services.

3.5.4 Control and Modification of a Connection

The provisions define the terms and controls of test and measure to be conducted by the PTISO, the user or the other users on the connections, the associated facilities and the close network.

3.5.5 Special Terms of Post Connection Intended to Public Distribution

The connection of a step-down station intended to public distribution entails sliding of loading from existing posts to the new post. The distribution network operator has to provide the PTISO with information characterizing the new demand in the concerned distribution zone.

3.5.6 Connecting Production Units through a Distribution Network

A significant amount of energy injected in the distribution networks does not physically return through the transmission network. The distribution network operators and the PTISO have to agree on the means that will enable the PTISO to know in real time the volume of injections and to forward the instructions and the information from the distribution facilities towards the producer.

The distribution network operators and the PTISO have to jointly carry out studies on the impact on the networks in order to make a decision about the connection plan.

3.6 Operations on the Network

The provisions describe the operations that are related to the injection of a fixed quantity of electricity in one or several points of a determined network and the extraction of the same quantity at the same time, to the losses, in one or several other points of the same network or of a neighbouring interconnected network.

The developed level of information exchange between the PTISO and the users (providers and clients) to prepare and supervise them depends on the number of users who have access to the network as well as the nature of authorized operations.

The content of the sections presented below is to be adapted to the public transmission network following the categories of market stakeholders and the authorized operations.

Section 1 presents conditions to access the network and specifies the administrative registration modalities of a connection demand, particularly, by discriminating its ownership

and its use, characterizing the access for injection, for extraction or for market intermediary while ensuring injection and extraction at the same time.

Section 2 presents the possible operations and the obligations of users to conduct:

- Exchanges on the PTISO network,
- Exportations towards a border PTISO,
- Importations from a border PTISO
- Transits.

Section 3 defines the content of an operation demand and the respective obligations of the applicant and the PTISO, especially, his registration.

Section 4 describes the circulation of an operation demand that includes several operators (distribution network and transmission network of the country and neighbouring countries).

Section 5 defines the frequency of an operation demand and its presentation deadline to the PTISO, for instance, annually with one or two month deadline prior to a long term bilateral contract and before 4 PM on the eve of an operation on the daily market.

Section 6 defines the approval terms or the partial or total refusal by the SO (System Operator) of an operation demand.

The PTISO analyses daily every operation demand by discriminating those it cannot limit or ban within a specific period because of a public transmission network safe functioning reason.

The PTISO, the border PTISOs and distribution network operators exchange and coordinate their analysis of common operation demands.

The PTISO approves each operation before its execution. A considerable deadline is given to the applicant, whose operation was limited, to modify his demand and have it approved by the PTISO.

The selection criteria of demands which are likely to be limited are fixed, for example, according to the “first come, first served” rule.

In order to simplify the procedure, it is useful to approve differently the long term and short term operation demands (deadline, frequency, etc).

The procedure which permits the PTISO to, temporally or definitely, modify an already approved exploitation program is defined.

Section 7 defines the powers of the PTISO in case of unexpected system congestion.

Section 8 defines the treatment of deviations with reference to approved exploitation programs.

Generally, hour duration is defined within a framework where the deviations are authorized and valued following the conditions of system services.

The measures taken by the PTISO in case of extended deviations are described considering the fact that there is an obligation to supply all the consumers in acceptable security conditions by activating standby contracts, by making the most of the possible positive or negative deviations, by using available reserve systems and, if necessary, by imposing the return to operation balance in case of extended deviation (load reduction).

Section 9 defines the treatment of losses :

- by an individualized allocation, on condition that the number of contracts is low,

- As a system service, the PTSO buys energy at a lower price, which corresponds to network losses, and invoices it on the basis of the public transmission network use tariff.

The PTSO has to make transparent the origin and price of the energy charged for losses.

3.7 System Services

System services and their billing mode are described by distinguishing between personalized and general services, which are charged individually or on the basis of the public transmission network use tariff.

The table below presents the different services and their users.

Type of Service	Service Provider	Producer User	Assignable to a specific Client
Primary Frequency Control	Generation Plants	Yes	Charged through Network Use
Secondary and Tertiary Frequency Control	Idem	Yes	Idem
Voltage Stability	Idem and network	Partial	Partial (consumption of reactive energy)
System Reboot	Some Plants and Networks	Yes to various degrees: isolated network market, de-grouping auxiliaries, reboot on inactive network	billed through network use
System control and Network operation	Network	No	Idem

For each system service, the section specifies the following:

- The conditions underlying the provision of system services;
- The procedures of acquisition of the service by PTSO, which generally constitutes a long-term contract after competitive bidding;
- The remuneration of the service based on the power and energy supplied;
- The principles guiding the use of services by TSO by rising costs;
- The principles of billing for users with the threshold (PHI tangent) on which basis reactive energy consumed is billed;
- Daily monitoring of the service's availability.

A model contract for each type of system service will be attached to the network code.

3.8 Operating Program

The provisions designate the operators in charge of planning, the missions of PTSO and the conditions of independence required between the services carrying out the functions.

The main operators are:

- Free market supplier, possibly through the Open Market Organizer,
- Public Service Commercial Agent ,
- Owner-operator of a public transmission network,
- Hirer-operator of a public transmission network owned by a third party,
- System operator.

Four planning frequencies are required during the period: annual, monthly, weekly and daily.

The annual program is necessary to harmonize periodic maintenance periods for essential components of production facilities and of the public transmission network.

The monthly program acts as a confirmation of the annual program with adaptations incorporating random events that result in changes in the unavailability program.

The provisions describe the information to be provided by producers, network maintenance services and the iterative protocol permitting PTSO to disseminate the unavailability programs of production groups and major components of the network.

The weekly program includes the unavailability of the network secondary components. PTSO simulates the operation of the system on schedule basis before confirming the operating program for energy production plants and supply of system services.

The role of operators in the daily planning takes the market structure into account.

In a dominant regulated market and an open market, consisting of long-term bilateral contracts, the System Operator may be required to establish demand forecasts for public distribution given that he possesses a series of consumption statistics and can analyze the influence of external factors on the daily load curve, such as seasonality, the profile of week days, celebrations and other events, temperature and rainfall.

The Public Service Commercial Agent (ACSP), manager of PPA contracts, provides the System Operator with a supply plan usually based on priority ("order of merit").

Under these conditions, the daily variables to be considered by the System Operator in the planning of generation units are essentially the exchange contract agreed between the Free Market Organizer and the ACSP.

Responsibility for forecasting demand for public distribution is gradually transferred to the distribution network operators.

However, the procedure is always as follows:

- The System Operator asks for confirmation on the availability of power declared by the available plants or plants in operation;
- He confirms with his external partners the consideration and feasibility of quantities scheduled for cross-border trading;
- He simulates per half-hour the system balance based on demand forecasts, the order of priority laid down by the ACSP, the trade program established by the MO, the exchange programs between the two entities as well as the losses. He checks the reliability of the system with respect to the following; criteria n-1 or equivalent, reserve ratio, compliance

with voltage levels as well as at the borders, conformity of scheduled productions with supply commitments undertaken by system services;

- In case of production congestion or of the public transmission network (excluding cross-border interconnections), the System Operator will suggest a cheaper alternative operation plan to the MO and the Public Service Commercial Agent (ACSP);
- After approval by MO and of ACSP, the System Operator will publish and disseminate to the following:
 - the of the MO and the Public Service Commercial Agent, the overall production and cross-border exchange program,
 - each plant, the detailed program of work, for production of active and reactive energy, the rate of change of power ("load following") and the provision of system services.

The time limits for information exchange are specified.

Standard information forms are to be attached to the network code or to the operation manual of the System Operator.

3.9 System control

The control of the production-transmission system includes all the tasks performed by the System Operator in coordinating the commitments of producers, the operator of the public transmission network as well as the operations which make use of the interconnections as agreed with border PTSO.

The daily operation is based on the daily program and through constant monitoring of the parameters of system security it ensures that the effects of random events are immediately compensated for or are mitigated through coordinated use of all or part of the equipment and measures available at the appropriate time.

Section 1 defines the normal operation.

The normal situation refers to situations resulting from relatively minor incidents that do not cause a permanent deviation of the system parameters out of bounds.

Measurement parameters of the system, such as the load of system components, voltages, as well as at borders, and primary and secondary reserve rates must lay within the limits stated in Chapter 2, section titled Performances.

In addition to the operations scheduled, the System Operator directs the operations that maintain measurement parameters of the system within these limits in case of unexpected and non instantaneous events.

If the control center of the System Operator is specially equipped with an automatic voltage adjustment device ("optimum load flow"), which can relatively induce large and rapid voltage variations, the System Operator will coordinate voltage adjustment to the "borders", with border PTSO as well as with distribution network operators (step-down transformers for distribution).

Section 2 refers to the operations under abnormal conditions.

Following an unexpected event, if one or more measurement parameters for part or for the entire system become permanently deviated outside acceptable limits, the System Operator will implement technical measures to prevent the spread of the incident, restore a stable condition and return to a normal situation.

To this end, the System Operator, will develop, update and disseminate a defense plan stating the measures to be taken in case of incidents that have a significant impact on the system. These provisions will include the list of information that the System Operator must receive, in real time or within a very short time, concerning the facilities of public transmission network and interconnected border networks users. .

These measures may include:

- A distant manual power shedding of some customers by the System Operator,
- Network fragmentation into several sub-systems with the required capacities to function independently and perform an off-grid restart.

They must specify the following:

- Management of the binomial voltage-reactive energy and operating conditions to maintain optimum "load flow";
- Operation codes ("Black Start") for reboot a system with a dead network following a general or regional breakdown.

The System Operator shall develop and maintain the automatic load shedding device in good operating condition using frequency thresholds. Moreover, alongside the users involved (producers, operators of public transmission network, processing and telecommunications centers), he shall ensure the proper working condition of facilities (auxiliary schemes, UPS, etc.).

He shall check the consistency between the conclusions of the analysis of incidents and the specifications of equipment connected to the network as stated in connection contracts and as defined by actual performance.

The findings of these checks may help improve some components of the system and modify the terms of connection contracts.

3.10 Measurements and metering

Measurement equipment is used for operating the system and for the billing of exchanges and the use of the public transmission network.

3.10.1 Administrative Provisions

The administrative provisions define the measurement point, location of meters, their number and ownership: single and double, bidirectional, etc., their installation, protection and their inclusion on the register of measuring points by PTSO.

PTSO shall have access at all times to the equipment and information in private premises.

3.10.2 Technical criteria

The technical criteria shall determine the class of accuracy and overload of measuring transformers and meters, discriminated winding between measurement and protection, performance of meters with respect to storage of information, etc.

The provisions may consist in a document approved by the National Regulator and provided to users by PTSO.

3.10.3 Testing of equipment

PTSO shall test the measuring equipment before commissioning and during its service lifetime through frequent calibration and at the demand of the user.

3.10.4 Measurements

The provisions shall define the following:

- The frequency of measurement,
- The periodicity of measurement values,
- The validation of measurement values including the estimation method in case of equipment failure, the determination of values when the measurement point is not the supply terminal, etc.
- The provision of information related to exchanges between users as well as supplies made to PTSO,
- User's access to meterings in facilities,
- Storage of the measurement data.

3.10.5 Other measurements and information

The PTSO may request for measurements and information other than metering, such as the instantaneous measurements of power, voltage, positions of equipment such as circuit breakers, information relating to protection, etc.

The provisions can refer to the connection contract to show up the detailed information required and the operations that facilitate the relaying and communication of this information to PTSO.

3.11 Information

3.11.1 Communicating information

The provisions establish the following procedures for information:

- Technologies and protocols involved in the transmission of information;
- Emergency procedures in case of failure or unavailability of normal transmission routes;
- The responsibility of users to respond to any request for information issued by PTSO, especially when required to analyse incidents.

3.11.2 Confidentiality of information

Confidentiality applies to all the information received by the PTSO from users of the public transmission network, with the exception of the information that is publicly disclosed by users, which can then be freely provided to a third party by PTSO, or when information comes from an anonymous statistical management meant for the current needs of PTSO.

3.12 Relationship between PTSO and distribution network operators

The relationships between PTSO and the distribution network operators are critical in the early stages of de-integration, insofar as these operators have neither experience nor the tools for forecasting demand and verifying the load on the different components of the distribution network (step-down substations). In practice, some of these tasks will be transferred from the national control center to regional centers of distribution control.

The PTSO and distribution network operators will jointly develop the following basic data for the next year:

- the annual graph of peak load per station, including growth in demand,
- The demand growth per station,
- Forecasts of new extraction and injection greater than 2 MW,
- Periods of startup and shutdown of capacitor banks that are not directly connected to the station,
- The load transfers between stations performed through distribution networks higher than 10% of the guaranteed power of HV / MV stations.

When necessary, the PTSO and distribution network operators will jointly agree upon the terms for inviting electricity generation plants connected to distribution networks. Such terms may, for example, focus on coordinating the invitation of production facilities, managing congestion and giving priority to plants generating electricity from renewable energy sources and co-generation.

PTSO and distribution network operators will be immediately informed of new licenses and suspensions regarding access to the public transmission network through a distribution network.

PTSO and distribution network operators will come to a consensus on the provisions and procedures for the exchange of measurement values and metering. He will transmit to each other the values of energy exchanged per quarter hour, per producer and per eligible customer connected to the distribution networks to calculate the differences.

In order to better assess flow losses and voltage quality, PTSO and distribution network operators, who have a shared responsibility, shall, according to the jointly agreed terms, implement, bidirectional metering methods and a high quality recording system.

3.13 Cooperation among PTSOs in the adjustment zone

The cooperation between the PTSOs of an interconnected zone aims at achieving a stable and reliable operation of the zone. It is based on the definition of rules and their application, the implementation of appropriate technical means and control measures.

Within the adjustment zone, PTSOs are responsible for enforcing rules within their territorial scope and a System operator is chosen among them as a representative of the adjustment zone at the CIC that represents WAPP.

3.13.1 Duties of the PTSO toward border PTSOs and the entire interconnected zone

Each PTSO has a duty to provide network access provided it does not put the entire interconnected system at risk.

PTSOs in the protection zone are united with respect to the regional system. It is their responsibility to act jointly when the security of their protection zone is threatened by abnormal activities in neighbouring protection zones, such as abnormal or varying flows induced by neighbouring zones.

Each PTISO has the following responsibilities:

- Respecting the reserve rate for instantaneous adjustment and adjustment on a minute basis,
- Coordinating exchange programs between countries,
- Coordinating and respecting the voltage level set for the border,
- Supplying necessary information for the exact determination of cross-border exchanges and compensation of involuntary deviations according to regional rules,
- Respecting security criteria (n-1 or equivalent) without constraining the transmission networks of neighbouring countries on specific agreement conditions while considering a reliable network of some systems,
- In cross-border exchange programs, limiting full load of interconnection lines in normal situations, so as to guarantee the passage of mutual assistance flows (flow corresponding to physical laws).

The key modalities of cooperation for the responsible participation of PTSOs constitute a part of the following sections.

3.13.2 Participation in Frequency – Power Adjustment

The prescriptions of WAPP apply to terms of participating in frequency – power adjustment. The PTISO always guarantees the availability of primary, secondary and tertiary reserves for the efficient functioning of the system. When necessary and within the deadlines set by WAPP, it activates the reserves so as to follow the general frequency instruction and the program of exchanges.

To this effect, WAPP presents basic performances for the region and each adjustment zone, in particular

- maximum values of abrupt variations of power and frequency,
- distributing the response to every abrupt variation of power between adjustment zones,
- width of the useful frequency band,
- maximum width of the dead band of frequency variation,
- maximum time for mobilising the primary and secondary reserve,
- maximum time for restoring the frequency and the level of exchanges

The distribution of the secondary and tertiary adjustment power between each country of the adjustment zone stems from an agreement between these countries

It is good practice to:

- harmonise the mode of distributing secondary adjustment between countries within a adjustment zone (practically, to choose between the hierarchical or pluralist mode) ;

- Designating “coordinator of secondary adjustment” a supervision plant (System Operator) of the region responsible for the good finalization of compensating secondary exchanges for the whole zone.

Within the adjustment zone, PTSO always exchanges power data and the opinion of secondary adjustment controllers with other PTSOs. The System Operator, coordinator of the zone is in charge of dialogue with CIC.

The values measured during incidents should indicate that the system has the required characteristics as far as frequency – power primary adjustment is concerned.

The analysis of performance during incidents equally helps evaluate, at least statistically, the quality of the secondary control of each system managed by a PTSO and the entire adjustment zone.

3.13.3 Coordination of Voltages at Borders, Control of Exchange Flows of Reactive Power

PTSO with other PTSOs coordinate:

- levels of isolation,
- limits of voltage fluctuations at borders, if necessary during off-peak or peak load periods,
- tools used for production – for the absorption of reactive energy with a localisation that helps adjust voltages at each border crossing,
- measuring voltage and power from a site close to the border, whatever the country may be,
- considering the possible impacts of automatic systems for adjusting reactive power and voltage on voltages at borders.

3.13.4 Compensation of Involuntary Deviations

In order to ensure the recording of cross – border exchanges, the PTSO exchanges data of metering results relating to every country whose users conduct operations with the other PTSOs of the countries concerned.

The authority of the control centre of the adjustment zone coordinates the right execution of compensations between the countries concerned and the members of the neighbouring adjustment zones. The instructions of WAPP are implemented.

3.13.5 Planning the Development of Public Transmission Networks

PTSO and the other PTSOs coordinate in order to synchronise the periodic revisions of the development plans of national public transmission networks so as to harmonise these plans at the level of the adjustment zone and to give room for a global analysis in conformity with the procedures mentioned in the Chapter 3 above.

PTSO informs the other PTSOs when it makes significant changes such as starting units of significant production, significantly extending the public transmission network, etc.

It coordinates with other PTSOs to install and regulate protections of cross - border interconnection lines and major facilities nearby situated.

3.13.6 Operational Planning and Coordination of actions

Provisions concerning consideration and approval conditions of cross – border operation demands by the operators of the systems concerned are specified in Chapter 4.6 above

PTSO and other PTSOs particularly adopt common rules and operation procedures for incidents affecting interconnection lines and national incidents with repercussion on border countries.

Generally, PTSO agrees with the other PTSOs on the small operational security conditions of interconnection lines: n-1 rule or equivalent, automatic disconnection of generation units in case of serious incident, etc.

It exchanges with the other PTSOs on the programs concerning the shutdown of major components of each system.

It drafts the modalities of mutual assistance with other PTSOs to resume service after a serious incident affecting several countries.

3.13.7 Exchange of Information

PTSO with the other PTSOs of the adjustment zone set up a common data base supplied by each party. This common data base could contain the following information:

- (off line) semi-permanent information notably containing data about equivalent network, programs of shutdown of major facilities, common measures of response to serious incidents,
- (on line) information in real time notably containing the state of interconnection lines (the position of equipments, exchange volumes, voltage level, etc.), major facilities close to these lines, primary and secondary regulating reserves, etc.
- information on cross-border exchanges with verification and confirmation steps of exchange demands (common identifier) on a daily basis, unavailability of facilities leading to or which could lead to congestion situations, etc.

3.14 Claims Processing and Settlement of Disputes

PTSO is in charge of processing the claims of the network users.

It can be consulted within the framework of conciliation and arbitration procedures between the network users.

The National Regulator is the body of conciliation between PTSO and the network users.

The regional regulator can be designated by the parties to settle the dispute between the PTSOs.

The settlement of commercial disputes is filed to competent trade tribunals.

The annual report of PTSO comprises the list of conflicts that occurred during practice and their resolution.

3.15 Revision of the Network Code

The network code contains stable parts relating to technical aspects and parts concerning the organisation of the sector, which depends on the stages of market opening (access to the public transmission network).

The adequacy of operating procedures and requirements should be evaluated periodically in order to produce desirable supplements and modifications, whenever the need arises.

The reviews can be done by:

- analysing claims mentioned in the annual report of PTSTO;
- a petition of users ;
- a PTSTO motivated proposal;
- a new requirement of the national or regional regulator.

The modification project shall be prepared by PTSTO and submitted for approval to the national regulator.

In the view of drafting this project, the constitution of a task force comprising PTSTO, the delegates of producers and the delegates of consumers shall be useful.

3.16 Transitional Measures

Transitional measures help move progressively from the present situation to the situation anticipated by the network code. They help specify the deadlines for the implementation of the code requirements, particularly connection contracts, access contracts, networks and metering land registry.

3.17 Annexes

The annexes to be included are as follows:

- Standard connection contract
- Codification of equipment
- Contract model for each category of system services
- Standard information form.