

---

**DEVELOPMENT OF WAPP MARKET DESIGN AND  
MARKET RULES**

---

**DELIVERABLE:**

**Road Map Final Version**

**Prepared for:**



**WEST AFRICAN POWER POOL**

---

**Prepared by:**

**AF-MERCADOS EMI**

---

November 20<sup>th</sup>, 2011

MI 1283

# DEVELOPMENT OF WAPP MARKET DESIGN AND MARKET RULES

## TABLE OF CONTENTS

<b>I BACKGROUND .....</b>	<b>5</b>
<b>II INTRODUCTION.....</b>	<b>6</b>
1. OBJECTIVES.....	6
2. PROJECT ORGANISATION.....	6
3. THE TASK .....	7
4. THE DOCUMENT .....	8
<b>III ROAD MAP.....</b>	<b>9</b>
1. INTRODUCTION .....	9
2. THE CURRENT SITUATION AND THE OBJECTIVE SITUATION .....	10
<b>2.1. INTRODUCTION: REGIONAL MARKETS ORGANISATION.....</b>	<b>10</b>
<b>2.2. THE CURRENT SITUATION .....</b>	<b>11</b>
2.2.1. Institutional aspects .....	11
a) General Assembly.....	12
b) Executive Board .....	12
c) Organisational Committees .....	12
d) WAPP General Secretariat.....	12
e) Information and Coordination Centre (ICC).....	13
f) ERERA.....	13
2.2.2. Requirements regarding domestic regulations .....	13
2.2.3. Trading rules and regional regulation .....	14
2.2.4. Dispute resolution procedures .....	14
2.2.5. Regional Standards.....	14
2.2.6. Development of infrastructure.....	14
2.2.7. Training aspects.....	15
<b>2.3. THE REGIONAL MARKET FINAL PHASE.....</b>	<b>15</b>
3. THE PHASES TO TRANSIT FROM THE CURRENT SITUATION TO THE OBJECTIVE SITUATION.....	17
<b>3.1. INTRODUCTION .....</b>	<b>17</b>
<b>3.2. PHASE 1.....</b>	<b>18</b>
3.2.1. Institutional Aspects .....	18
3.2.2. Domestic Regulations .....	18
3.2.3. Trading Rules and Regional Regulation.....	18
3.2.4. Dispute Resolution Procedure.....	19
3.2.5. Regional Standards.....	19
3.2.6. Development of Infrastructure .....	19
3.2.7. Training Aspects.....	19
3.2.8. Preparatory Activities.....	19

<b>3.3. PHASE 2</b> .....	<b>20</b>
3.3.1. Institutional Aspects .....	20
3.3.2. Domestic Regulations .....	20
3.3.3. Trading Rules and Regional Regulations .....	20
3.3.4. Dispute Resolution Procedures .....	20
3.3.5. Regional Standards.....	20
3.3.6. Development of Infrastructure .....	20
3.3.7. Training Aspects.....	20
3.3.8. Preparatory Activities.....	20
<b>3.4. PHASE 3</b> .....	<b>21</b>
4. THE TASKS REQUIRED FOR EACH PHASE.....	22
<b>4.1. PREPARATORY TASKS FOR PHASE 1</b> .....	<b>22</b>
<b>4.2. PREPARATORY TASKS FOR PHASE 2</b> .....	<b>23</b>
<b>4.3. PREPARATORY TASKS FOR PHASE 3</b> .....	<b>24</b>
5. SUMMARY OF TASKS AND RESPONSIBLE .....	25
6. TASKS ORDER OF PRECEDENCE .....	29

## LIST OF TABLES

Table 1: Summary of Tasks and Responsibility for Execution .....	26
--	----

## LIST OF FIGURES

Figure 1: Project Organisation: Activities, Reports and Deliverables.....	6
Figure 2: Regional Market Global Organisation.....	11
Figure 3: Order of Precedence of the Different Tasks .....	30

## I BACKGROUND

The West African Power Pool (WAPP) was established in 1999 by Economic Community of West African States (ECOWAS) countries members to promote regional energy integration. The main missions of the WAPP is to facilitate the establishment of an institutional and regulatory framework conducive to investments, the development of generation and transmission infrastructures and the creation of a regional market for electric power.

In January 2003 the “Energy Protocol” was signed in Dakar (Senegal). This Protocol establishes a legal framework in order to promote long-term co-operation in the energy field, based on complementarities and mutual benefits, with a view to achieving increased investment in the energy sector, and increased energy trade in the West Africa region.

In January 2006, pursuant to Decision A/DEC.20/01/06 of the Authority of Heads of States and Governments of ECOWAS, the WAPP Secretariat was established as a specialized institution of ECOWAS embracing the private and public power utilities within the ECOWAS Member States.

The above mentioned milestones (together with other decisions) provide for a strong legal basis for the development of WAPP as a regional organisation and provide the required tools to achieve its objectives.



## II INTRODUCTION

### 1. OBJECTIVES

The project's general objective is "to design and develop an electricity market for the West Africa Power Pool".

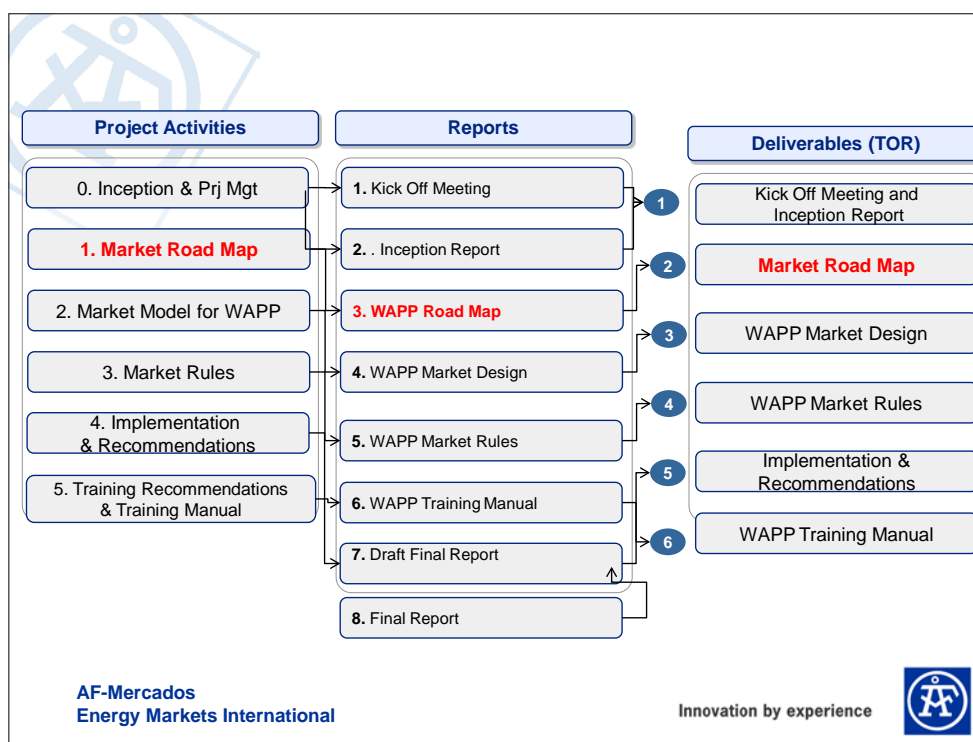
This general objective should be achieved by means of the following specific objectives / activities:

1. Develop a Road Map required to transit from the present technical and commercial status to a regional electricity market.
2. Analyze and recommend market model.
3. Develop electricity market rules.
4. Assist in the establishment of comprehensive trading rules.
5. Develop a systematic and detailed integrated action plan.
6. Review and advice on consolidation of existing agreements.
7. Develop guidelines for establishing the Wholesale Electricity Market (WEM), relevant Transmission Tariff and transition to a competitive energy market.
8. Training recommendations and training manual.

### 2. PROJECT ORGANISATION

The project is organised in activities one corresponding to the specific project's objectives mentioned in the previous point. The next figure shows the activities and their relationship with the main products or reports and the deliverables established in the terms of reference; this report corresponds to the deliverable marked in red.

Figure 1: Project Organisation: Activities, Reports and Deliverables



### 3. THE TASK

The task scope as agreed during the Inception Mission is described as:

*The transition from the current situation to the “objective situation”, that is to say a situation where countries are trading in a power market with sufficient transmission infrastructure available and in a market environment”, requires a series of actions to be taken, and which must be structured and implemented in a given timeline.*

*The Road Map is the tool which allows the organization to follow, in an organised manner, the implementation of the different stages needed to achieve the objective situation. In this task it will be developed this road map which will be a “high level” one, pointing out the key elements that must be approached, and the key decisions that must be taken.*

*We indicate that this Road Map will be “high-level” because, at the start of this process it is only possible to begin with the broad strokes of the full implementation plan that the roadmap will become.*

*Developing the road map involves the definition of:*

1. *Current and objective situation*
2. *Intermediate objectives (power market phases)*
3. *Activities / decisions to be taken*
4. *Resources involved*
5. *Milestones*
6. *Responsible party for each activity / decision*

*The key issues that will be addressed in the road map are:*

1. ***Institutional aspects:*** *which are the institutions needed, when they are needed and which activities those institutions have to perform.*
2. ***Adaptation of domestic regulations:*** *which are the requirements (at least) that domestic regulations have to meet so as not to prevent trading and advance in the constitution of the regional market. It is not possible to carry out an analysis of the situation in each of the specific countries, but we will address those elements that forcibly should be considered in the domestic regulations to foster trading and not prevent it.*
3. ***Trading rules:*** *adapted for each of the stages foreseen for market development and consistent with decisions and developments already taken.*
4. ***Dispute resolution procedures:*** *normally, these are included in the market rules but there are some high level aspects that require an initial discussion.*
5. ***Grid code and regional standards:*** *for each of the foreseen stages there will be technical standards and procedures to be met which are normally detailed in a regional grid code and regional technical standards. WAPP has already made substantial advances on this field which will be taken into account.*
6. ***Development of infrastructure.***
7. ***Training aspects.***

*It was agreed during the meeting that 3 phases would be considered for the market development with the following rough characteristics (this will have to be analysed, well designed and coordinated during the project execution):*

1. ***Phase 1:*** *from now and 2015 approximately when most regional transmission infrastructure is expected to be commissioned. Main characteristics of this phase would be:*
  - *Formalise trading that today is carried out on a “case by case” basis and standardise procedures such as:*
    - *Bilateral agreements (countries, regional companies)*
    - *Commercial Instruments (type of contracts, short term exchanges)*
  - *Transmission pricing agreed between parties*
  - *Initiate the regional operational and commercial coordination*
  - *Preparation for the following stage*
  - *Regional regulator: enforcement of rules and dispute resolution*

2. **Stage 2:** based on the preparations carried out during the 1<sup>st</sup> phase, and will include but not limited to the following:
  - Bilateral agreements with transit through third countries, based on standard commercial instruments
  - Back up of contracts in the market (possibility)
  - Short term exchanges through day ahead market (regional optimization model)
  - Regional transmission pricing
  - Regional System Operation/Market Operations functions
3. **Stage 3:** a long term vision which would include a regional optimisation of the operation.

The road map will then consist of a document which will establish the final objective, the phases needed to achieve the final objectives, key actions that have to be taken and the involvement of institutions and countries during this evolution.

It will be then also a tool for monitoring the market development and for managing the whole process properly.

## 4. THE DOCUMENT

This document ("Market Road Map") is organised in the following sections:

- I. An Introduction: this section
- II. The Road Map comprising the following points:
  1. Introduction
  2. The current situation and the objective situation
  3. The phases to transit from the current situation to the objective situation
  4. The tasks required for each phase
  5. Summary of tasks and responsible
  6. Tasks order of precedence



## III ROAD MAP

### 1. INTRODUCTION

The “road map” is a tool normally used during long term planning to show the path that links the current situation to the future or desired / objective situation.

Road maps, and the road mapping process are also useful as communications tools, an effective means to link strategic operations, collaborative ventures, monitoring the process and business plans.

For the sake of this TA we will define “road map” as the instrument that shows the link between the current situation and the desired one, specifying the intermediate phases (intermediate objectives) and actions and that have to be taken in different areas to achieve the objective in a certain period of time. These areas are namely:

- Institutional aspects.
- Requirements regarding domestic regulations.
- Trading rules and regional regulation.
- Dispute resolution procedures.
- Regional standards.
- Development of infrastructure.
- Training aspects.

A Road Map therefore can be also seen as a means to connect vision, values, and objectives with strategic actions that are required to achieve those objectives.

A road map can have different degrees of detail:

- **High level road map:** which shows the main phases and actions that need to be taken without entering into too much detail. They are useful as tools at political level or high managerial level to manage a whole process, define actions, responsible and monitoring the achievement of the different milestones. These road maps do not enter into much detail in the activities since the objective is to manage and monitor a global process.
- **Detailed road map:** it is a much more operative tool which goes into the details of each specific activity required to achieve an intermediate objective.
- Between these two types of road map it can be found an infinite number of variations depending on the degree of detail which depends on the objective of road map and the complexity of the situation that is being addressed.

The current document constitutes a “high level road map” for the following reasons:

1. It is intended as a tool to manage and implement a whole regional process: the process of implementing a regional market in the area of ECOWAS.
2. The moment, regarding the process itself, that this road map is produced is at the very beginning, so it is not possible to go into full detail of activities since there are elements which are not yet defined at this stage and whose details may need discussion and approval of the partner States.
3. This is the first “exercise” of road mapping for implementing the process, that is to say, is the first exercise of trying to look the whole process globally. Therefore, it has forcibly to focus on the general outline of the process and cannot enter into to much detail.

## 2. THE CURRENT SITUATION AND THE OBJECTIVE SITUATION

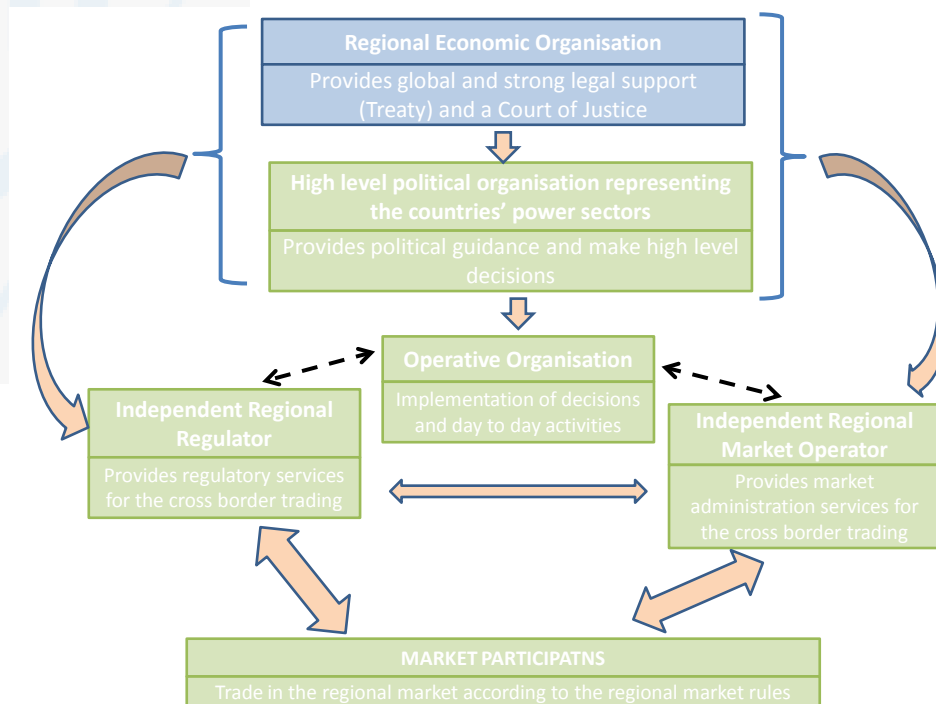
### 2.1. INTRODUCTION: REGIONAL MARKETS ORGANISATION

Regional markets adopt different organisations in the world but in Africa and in part in Central America we can find some common aspects:

1. They are part of a regional organisation with broader objectives: EAPP is a “specialised institution” of COMESA, SAPP is part of SADC, in the case of WAPP it is part of ECOWASS. Same happens for the Magreb market and CAPP.
2. The fact of being part of an economic organisation with wider objectives and with a Treaty already valid provides a strong legal basis and umbrella for developing the regional market. Among others because this economic organisations have a strong political commitment, they all have a Court of Justice, very useful for dispute resolution and the political principles are set.
3. These regional markets have a general organisation which consists of:
  - a. A high level institution where the countries political level is represented. This institution provides the political guideline, makes high level decisions and acts as the channel of communication with the economic organisation. In the case of EAPP is a Conference of Ministers, in the case of SIEPAC the CDMER is the highest level organisation (a Board which overviews the development of the regional market and provides guidelines), in the case of WAPP is the General Assembly
  - b. An operative institution where assignments and duties vary; in the case of WAPP this would be the General Secretariat.
  - c. An independent regulator which although technically independent is accountable and reports (in some matters such as budget, annual report of activities, etc) to the highest institution (Conference of Ministers, General Assembly).
  - d. An independent market operator for administrating the market and coordinating trade which reports to an executive authority.
  - e. Currently there are no examples with a regional system operator, understanding as SO one with the classical functions of an SO, this is optimising and having direct control on the generation resources (i.e. the regional SO dispatching all national generators). Even Nord Pool, one of the most advanced and sophisticated regional markets does not have a regional SO; domestic TSOs are responsible for domestic balance of the system and are responsible to “make happen” the trade that was agreed and authorised (because of technical reasons). PJM is an exception, although literature considers it a “regional market” in fact it is an inter state market within a unique country.

The following figure illustrates this global organisation which is the most appropriate to follow in the case of WAPP given WAPP’s existing organisation. This is only indicative since the final institutional organisation will be discussed during the “market design” stage; however it takes into consideration some of the already existing institutional arrangements (i.e. definition of an independent regional regulator – ERERA).

Figure 2: Regional Market Global Organisation

**Key:**

- Broad pink arrows indicate the main relationship among institutions. For example, according to current arrangements the regional regulator (it's main authorities) is appointed by ECOWAS.
- Regulator, market operator (not existing yet) and market participants interact in the market each of them with their rights, responsibilities and assignments established by the different regional laws and regulations.
- The regulator and the market operator have a relationship with the General Secretariat in some administrative aspects which are represented by the dotted black arrows.

**2.2. THE CURRENT SITUATION****2.2.1. INSTITUTIONAL ASPECTS**

The institutional aspects refer to the institutions involved (and needed) for the establishment of the regional market as well as the legal support these institutions need to have the corresponding authority, to develop their activities and to enforce decisions.

**LEGAL SUPPORT**

In this regards the WAPP has already developed a strong legal basis which allows the development of different instruments (and enforce them) needed for the implementation of a regional market. Among the most important legal instruments it can be mentioned:

- The ECOWAS Treaty
- The ECOWAS Energy Protocol
- Supplementary Act A/SA.2/1/08 Establishing the ECOWAS Regional Electricity Regulatory Authority
- Articles of Agreement of the West African Power Pool Organisation and Functions (October 2005)

- Regulation C/REG.27/12/07 on the Composition, Organisation, Functions and Operation of the ECOWAS Regional Electricity Regulatory Authority

### INSTITUTIONS

From the point of view of the institutions, the relevant existing institutions are:

- The WAPP structure (General Assembly, Executive Board, Organisational Committees, WAPP General Secretariat and WAPP Information and Coordination Centre).<sup>1</sup>
- ERERA – the regional regulatory authority

#### **a) General Assembly**

The highest decision making body for the WAPP where all members of WAPP are represented.

#### **b) Executive Board**

Taking into account the overall policy directives agreed upon by the General Assembly, the WAPP Executive Board would have decision making authority to develop and implement initiatives to achieve the mission of the WAPP Organization.

The Executive Board consists of twelve persons. Eight of the twelve members of the Executive Board are permanent, three are rotating. The twelfth member of the Executive Board is the Secretary General appointed by the General Assembly.

#### **c) Organisational Committees**

The Organisational Committees provide support and advice to the Executive Board on all matters concerning collective policy formulation functions for developing, maintaining and updating common “rules of practice” on technical, planning, operational and environmental aspects of WAPP. The Organisational Committees are composed of technical experts drawn from the WAPP membership.

The following committees are established in the “Articles of Agreement of the West African Power Pool Organisation and Functions (October 2005)”:

- Engineering and Operating Committee
- Strategic Planning Committee
- Finance Committee
- Human Resources and Governance Committee
- Distribution and Commercialisation Committee (recently created)

#### **d) WAPP General Secretariat**

The WAPP General Secretariat is the administrative organ to support the Executive Board in the accomplishment of the duties of the Executive Board and also responsible for the day-to-day management of WAPP.

Among General Secretariat’ duties other than general support to the WAPP structure it is mentioned: “provide day-to-day administration of the Information Coordination Center of the WAPP Organization” which means, at least in principle, that the ICC is not an independent body in general WAPP structure. This point will be discussed later.

---

<sup>1</sup> Source: Articles of Agreement of the West African Power Pool Organisation and Functions (October 2005)

**e) Information and Coordination Centre (ICC)**

The WAPP Information and Coordination Centre is an organ of the WAPP Secretariat which promotes operational coordination between Transmission Owning/Operating Members through actual day-to-day information sharing/exchange between WAPP Operational Coordination Centers.

ICC's main duties are:

- collect, analyse and disseminate the information;
- monitor the development of the national electric power sector in ECOWAS member states;
- periodically analyse the economic and technical viability of cross-border electricity trading arrangements among Transmission Using Members.
- facilitate the development of technical norms and standards for the collection and treatment of useful information;
- support and monitor the technical performance of the electricity utilities.

This means that (according to the current situation) the ICC has basically functions of gathering / disseminating information and facilitation of the development of norms and standards. It does not have the capacity of developing and enforcing rules. This point will be developed later when analysing institutional needs of a regional market.

**f) ERECA**

ERERA is a typical regional regulatory authority with capacity of developing and recommending rules, enforcing the rules, tariff issues, approval of the regional master plan and dispute resolution capacities to mention the most relevant ones. Its field of action is clearly limited to aspects dealing with the regional trade of energy.

From the point of view of its structure, responsibility and powers it is totally adapted to play the role of regional regulator as it is defined in the "Regulation C/REG.27/12/07 on the Composition, Organisation, Functions and Operation of the ECOWAS Regional Electricity Regulatory Authority".

**2.2.2. REQUIREMENTS REGARDING DOMESTIC REGULATIONS**

The power sector in the partner States is basically organised as state owned vertically integrated utilities with some exception (i.e. Nigeria has unbundled the power sector and is undergoing a privatisation process).

Regional markets do not require a specific organisation of the power sector of its partner states, on the contrary, international experience shows that a heterogeneous group of countries (from the point of view of the power sector organisation) can achieve the organisation of an efficient regional power market.

However, some minimum agreements are needed for cross border trading, namely:

- Open access to the spare capacity in the transmission systems
- Agreement on a method for payment of wheeling services
- Agreement on which assets constitute the regional network and the manner to. pay for the use of these assets (transmission tariff)

### **2.2.3. TRADING RULES AND REGIONAL REGULATION**

For the moment there are no regional rules for trading, thus trade among the countries is carried out on the basis of bilateral contracts. It is one of the objectives of this TA to develop the “regional market rules” for trading in the region.

There is no “regional transmission tariff set” though a methodology has been developed.

### **2.2.4. DISPUTE RESOLUTION PROCEDURES**

According to current the legal framework there are two possibilities for solving disputes:

1. The “Articles of Agreement Of The West African Power Pool Organization and Functions (Accra – October 2005)” provide for a method for solving disputes. This procedure involves the current structure of the WAPP: General Secretariat and Executive Board and it is like an arbitration procedure where a dispute resolution panel (3 members) is organised to solve the dispute. The General Secretariat main function is to ensure this panel is set and it can proceed with its task. This procedure does not apply to disputes covered by the dispute resolution procedures of any specific commercial agreement between Members. During the mission for discussion of Road Map report, this issue was discussed (the scope of this dispute resolution procedure) and it was concluded that this procedure was applicable to “disputes on technical issues”; at the same time it was informed by WAPP that the procedure had never been applied and there was no infrastructure set for its application yet (staff, detailed procedures).
2. On the other hand, EREERA has as one of its responsibilities, the duty of solving disputes dealing with cross border trading. EREERA has also as a responsibility to develop the corresponding procedure(s) for solving disputes. There is also the possibility of appealing to the Court of Justice of ECOWAS an EREERA’s decision.

Therefore it can be concluded that the needs regarding dispute resolution in a regional market are met even if some clarification is needed regarding when each forum for solving disputes is applicable. This will be a matter of discussion during the “market design stage”.

### **2.2.5. REGIONAL STANDARDS**

The region has developed and adopted an “Operation Manual for WAPP Interconnected Power System” This document together with the mandate the ICC has regarding standards is a basis for the region for the operation and homogenisation of standards in the region.

This Operation Manual will be taken into consideration to propose later the regional rules for trading or “regional market rules”.

### **2.2.6. DEVELOPMENT OF INFRASTRUCTURE**

WAPP has already designed an efficient procedure for the identification of infrastructure to be developed (regional master plan) and for the actual financing and construction of assets. It is maybe the best organised procedures for infrastructure development in a region which is trying to integrate.

The market rules will contribute to the development of infrastructure but by no means will modify the current procedure.

#### **2.2.7. TRAINING ASPECTS**

Today there is no organic training plan or training activities. This TA will identify those training needs most important for the development of the regional market and will propose the manner to implement them.

### **2.3. THE REGIONAL MARKET FINAL PHASE**

The regional market last phase or long term “objective situation” can be described as follows:

1. From the point of view of institutions, all institutions have been established (long ago) and are mature institutions functioning in a “steady state” regime. This would involve:
  - a. An institution with regional market operator functions.
  - b. A regional regulator with capacity of developing rules and standards, capacity of enforcing them, dispute resolution capabilities. From the formal point of view this already exists in the region.
  - c. An institution overseeing and coordinating the market evolution and making decisions on major political aspects. This is the already existing WAPP structure (General Assembly, Executive Board, General Secretariat)
2. Domestic regulations which facilitate regional trading; this includes:
  - a. open access to the transmission capacity
  - b. a power sector structure which fosters competition in the region which may involve (but not forcibly) a partial unbundling, with horizontal unbundling of generation and where generators and demand can participate in the regional market.
3. Trading rules which involve other markets such as a regional market for certain ancillary services and/or financial products/markets.
4. An adequate congestion management system is in place to deal with transmission congestion situations and the needs arising from the ancillary services market.
5. Regional standards have been homogenised in the region and all countries meet minimum standards for operation, planning and building of assets.
6. Development of infrastructure:
  - a. Transmission: sufficient transmission capacity in the region has been developed and there is a reasonable / acceptable level of congestion.<sup>2</sup>
  - b. Generation capacity has been developed (there is a sufficient number of participants in the market to make it really competitive) and there is sufficient reserve in the region.<sup>3</sup>

---

<sup>2</sup> An optimal system does not have zero congestion (in the transmission system), on the contrary, the economical optimum has a certain level of congestion. This can be demonstrated in economic theory.

- c. Rules have been agreed for sharing costs and benefits of “regional projects”, the procedures for implementing this type of projects has been agreed and the projects are being carried out normally.
  - d. A regional planning process involving regional optimisation concepts is in place and countries decide their expansion plans taking into consideration this regional plan. The expansion of transmission capacity in the region is “enforceable”.
7. Training aspects: all market participants have achieved sufficient know how and have adequate human resources for participating fluently in the regional market.

A situation with different regional markets (bilateral, day ahead, ancillary services, and financial products), liquid (or dynamic) markets with enough transmission capacity and real competition, approaches to an “optimal” situation provided markets are really competitive. Competitiveness in the markets must be fostered (and overseen) by adequate market monitoring systems and institutions with the capacity of enforcing corrective measures if this does not happen.

---

<sup>3</sup> A market where reserve is short faces serious problems of price spikings and runs the risk of market price manipulation during situations of shortage. It is also much easier to exercise anti competitive practises and abuse of a dominant position in a market where reserve is short.



### 3. THE PHASES TO TRANSIT FROM THE CURRENT SITUATION TO THE OBJECTIVE SITUATION

#### 3.1. INTRODUCTION

The regional market evolution has been envisaged in three phases:

1. **Phase 1:** from now and 2015 approximately when most regional transmission infrastructure is expected to be commissioned. Main characteristics of this phase would be:
  - a. Formalise trading that today is carried out on a “case by case” basis and standardise procedures such as:
    - ✓ Bilateral agreements (countries, regional companies)
    - ✓ Commercial Instruments (type of contracts, short term exchanges)
  - b. Transmission pricing agreed between parties
  - c. Initiate the regional operational and commercial coordination
  - d. Preparation for the following stage
  - e. Regional regulator: development of rules, enforcement of rules and dispute resolution
2. **Phase 2:** based on the preparations carried out during the 1st phase, and will include but not limited to the following:
  - a. Bilateral agreements with transit through third countries, based on standard commercial instruments
  - b. Back up of contracts in the market (possibility)
  - c. Short term exchanges through day ahead market (regional optimization model)
  - d. Regional transmission pricing
  - e. Regional System Operation/Market Operations functions<sup>4</sup>
3. **Phase 3:** a long term vision with a liquid day ahead market, dynamic trade in the bilateral market, and introduction of other markets (ancillary services, financial products) (Described in III 2.3 The Regional Market Final ).

The transit from one market phase to the following one is not done according to specific dates or a certain fixed calendar, it is triggered by a certain number of conditions that are necessary to be fulfilled to pass from one phase to the following one and will be specified for each case.

Next points will describe phases 1 and 2 (Phase 3 has been described in III 2.3 The Regional Market Final ) in terms of:

- Institutional aspects
- Requirements regarding domestic regulations

<sup>4</sup> The System Operation functions we are referring to here are not the classical functions of a SO which involve management of generation assets. They refer to a monitoring of the cross border trading from the operational point of view and fostering the coordination with domestic TSOs.

- Trading rules and regional regulations
- Dispute resolution procedures
- Regional Standards
- Development of infrastructure
- Training aspects

### **3.2. PHASE 1**

#### **3.2.1. INSTITUTIONAL ASPECTS**

Two main aspects are required for this market phase:

1. The regional regulator (ERERA) puts in place an operative dispute resolution procedure. This involves defining the procedure and that ERERA counts with the appropriate staff to actually solve disputes. It also involves a clarification regarding the existing procedure at the WAPP structure level (General Secretariat) and the mandate ERERA has to solve disputes.

The possibility of enforcing regulations is already an ERERA's capacity.

2. An institution (either existing or new one) is charged with the task of regional operation and commercial coordination. This institution must be thought as the seed of the future "regional market operator". An alternative is allocating these tasks to the existing ICC and modify its assignments with the optic that it will be transformed in the future in a full regional market operator. This means changing its status and make it "independent".

The other alternative is creating a new institution: a regional market operator.

This aspect was discussed with the Client during the Road Map mission and it was agreed that during market phase 1 the market operation functions needed would be performed by the ICC, so the need will be from the formal point of view, to modify the ICC's assignments. For market phase 2 ICC would be "spin off" from the current General Secretariat structure and become an independent regional market operator.

#### **3.2.2. DOMESTIC REGULATIONS**

The key aspects that may need modification in the domestic regulations are:

1. Internalising the contracts and procedures defined at regional level. This means accepting and actually using the type of contracts defined and follow procedures of contract registering as set by the rules.
2. Implement the needed actions to adjust the domestic technical standards to the ones regionally set. This may take time but the power systems in the different countries have to agree on these standards and begin adjusting the current ones to the ones regionally adopted.
3. Open access to the spare transmission capacity.

#### **3.2.3. TRADING RULES AND REGIONAL REGULATION**

For the moment there is no need of a specific set of trading rules since trading will be carried out on a bilateral basis, however there are aspects that have to be implemented.

1. Standardisation of contracts for trading
2. Definition of which are the market participants
3. Role of domestic TSOs

#### **3.2.4. DISPUTE RESOLUTION PROCEDURE**

Defined and set at the regional regulator level (ERERA) and coordinated with the currently existing procedure at General Secretariat level.

#### **3.2.5. REGIONAL STANDARDS**

Review the current Operation Manual in case it may need any adjustment for the future (although market rules will be as far as possible adapted to the existing manual).

Establishment and implementation of a plan for countries adjusting their standards and procedures to the regional ones according to the Operation Manual or its revisions.

#### **3.2.6. DEVELOPMENT OF INFRASTRUCTURE**

The current procedure is maintained. Regional Master Planning is carried out with an established frequency.

Countries develop their master plans taking into consideration the regional master plan.<sup>5</sup>

There will be infrastructure needed by the future market operator that needs to be planned and purchasing process initiated (commercial metering system, communications systems, SCADA, hardware and software for market operator, etc). According to the information received during the last mission (Road Map discussion) these aspects are much advanced already.

#### **3.2.7. TRAINING ASPECTS**

A training program is set and implemented according to the needs of the future evolution of the market.

For this phase 1 it is not needed a specific knowledge not available today in the region but it is most important to prepare and train staff for phase 2.

#### **3.2.8. PREPARATORY ACTIVITIES**

This market phase is characterised by need of preparing institutions, staff and rules for the next stage. This will be the main load of work for this phase.

Maybe the key or "heaviest" decision will deal with institutional aspects and is the one regarding the institution that will be the seed for the regional market operator: transform the ICC in this institutions? Or create a new one? This decision has already been taken at WAPP level (during phase 1 ICC will perform the required market operation functions and for phase 2 it will be "spin off" and transformed in an independent regional market operator). The task will be then to implement from the formal and practical point of view this decision.

In next points it will be established clearly and in an orderly manner the tasks that have to be achieved during each phase and the conditions to evolve to the next market phase.

---

<sup>5</sup> We assume that regional projects will be carried out basically under Special Purpose Entities (SPE) where countries and private may have participation. The sharing of costs and benefits will be agreed through this participation in the SPE.

### **3.3. PHASE 2**

#### **3.3.1. INSTITUTIONAL ASPECTS**

An institution with a regional market operator's functions has been established and is operating. Main functions are coordinating trade carried out through bilateral contracts, operate the day – ahead market and manage the regional market (commercial operation such as settlement, billing, collection and payment, etc)

#### **3.3.2. DOMESTIC REGULATIONS**

No additional modifications, apart from the achieved in phase 1 are needed though it is desirable that the process of unbundling in the different countries advance with the objective of having more participants in the market.

#### **3.3.3. TRADING RULES AND REGIONAL REGULATIONS**

The regulation corresponding to this phase is operational, namely the day – ahead market and the rules for bilateral trading with transit through third countries.

#### **3.3.4. DISPUTE RESOLUTION PROCEDURES**

No need for further modifications.

#### **3.3.5. REGIONAL STANDARDS**

Countries have achieved a certain minimum in standards which allow operating safely the regional transmission network.

#### **3.3.6. DEVELOPMENT OF INFRASTRUCTURE**

The current procedure is maintained. Regional Master Planning is carried out (and updated) with an established frequency.

Countries develop their master plans taking into consideration the regional master plan more closely than in the previous phase.

The market operator's infrastructure that was planned during phase 1 is in place, tested and operating.

#### **3.3.7. TRAINING ASPECTS**

During phase 1 there was a preparatory training for operating during this market phase. The training during this phase is focused on enhancing the capacities developed in all countries' utilities to ensure they are capable of trading efficiently and with as few errors as possible.

At the same time TSO should be capable of coping with domestic system operation in a different environment where they are required to manage cross border flows maintaining quality and safe operation of their own systems.

#### **3.3.8. PREPARATORY ACTIVITIES**

It is expected that the market second phase will be quite long because:

- a) Transit to the third stage will require a strong regional transmission infrastructure to cope with a dynamic and "liquid" market and the needs for ancillary services markets.
- b) It is needed that the region counts with sufficient generation capacity (enough reserve) to make possible the market third stage.

It is therefore difficult to identify at this stage preparatory activities (for phase 3) since the reality may be very different in the future from expectations or estimations made today.

### **3.4. PHASE 3**

This phase has been described as the “objective situation” in point III 2.3 The Regional Market Final )

Main aspects are:

1. The region has enough generation and transmission capacity.
2. Trading in the bilateral markets and day ahead market is dynamic.
3. New markets are introduced (some ancillary services, financial products).
4. Regional master planning regarding transmission assets is enforceable., in other words, countries are “obliged” to implement certain transmission projects identified by the approved regional master plan.
5. The region has enough participants in the market so it is competitive and there is a low risk of exercising market power.

## 4. THE TASKS REQUIRED FOR EACH PHASE

This point details the tasks that are required to be carried out in order to evolve according to the market different phases. These tasks are at the same time the “activities” that are involved for the road map implementation.

### 4.1. PREPARATORY TASKS FOR PHASE 1

Although phase 1 of the market can be somehow considered as “ongoing” or partially ongoing (trade is currently being carried out but not in an organised manner), there are some tasks that need to be carried out to fully implement Phase 1. These are the tasks which are detailed in this point.

1. EREERA has to develop and implement a dispute resolution procedure for matters dealing with cross border trading. The institution has this task among its assignments but the procedure has to be developed, written, approved and made public.
2. EREERA has to ensure that it has enough and trained professional staff to undertake its responsibility in dispute resolution.
3. A decision has to be made regarding the market operation functions: either they are allocated in an existing organisation (such as the ICC) or a new institution is created.
  - i. The first solution is simpler but it implies a resolution at the corresponding level (General Assembly) allocating the functions and providing the ICC with the corresponding autonomy that a market operator needs.
  - ii. Creation of a new institution is maybe a more difficult solution but the decision would be taken at the same level. It is also more costly.

*According to the information provided during the mission for discussion of the Road Map, there is a preliminary decision (at General Secretariat level and there was agreement in the project task force) that for the market phase 1 the ICC would take the market operation functions and then it would be “spin off” and become an independent regional market operator. This spin off would be a condition precedent for phase 2. This means that the decision has to be ratified by the corresponding WAPP procedures and authorities.*

4. Implementation of the decision taken regarding the market operation functions. Once the decision is firm it is needed to modify the ICC status according to the WAPP procedures.
5. Establishment of the MO with the needed infrastructure. This task, according to information provided during the discussion of the Road Map is already ongoing (at least partially).
6. Development of the “contract templates” or “standard contracts” for trading and the procedures for their registering in the MO.
7. Approval of contracts and procedures regarding contracts.
8. Development and approval of regional market rules. This market rules will require further activities which today are not being carried out. The approval of the market rules will give place to another set of activities that have to be performed and are detailed in the market rules themselves (i.e. development of procedures, establishment of commercial data bases, etc)
9. Agreement on a “glide path” to regional standards and operational procedures (Operation Manual review). This means that agreements have

- to be met with the different utilities (TSOs) so they develop a plan that will allow them to meet the regional standards in a certain period of time (this period to be fixed in the agreement itself)
10. Internalisation by the countries of contracts, contracts procedures, regional market rules, regional standards adjustments and operational procedures.
  11. Development of a training program with the objectives of:
    - a. Develop the capacities at the regional institutions to be able to cope with the activities that will be required to implement, operate and monitor the regional market.
    - b. Develop the capacities at the countries' utilities level so as to be able to perform in a regional environment and trade efficiently.
  12. Implementation of the training program as established in the program.

#### **4.2. PREPARATORY TASKS FOR PHASE 2**

These are the tasks that must be carried out **during Phase 1** and in preparation for market Phase 2.

1. Spin off the ICC from the general structure of WAPP and consolidate it as an independent regional institution.
2. Equip market operator with the hardware and software necessary for the market second phase. This is a task which involves at least:
  - a. Decision on the hardware and software to be purchased
  - b. Actual purchase of the goods
  - c. Training in the use of the different systems
  - d. A period of testing either for the systems or the human resources.
3. Countries undertake the necessary actions to implement open access in their transmission systems.
4. Market rules for this stage are reviewed and "fine tuned" if necessary. If adjustments are made they have to be approved by the corresponding authority (in this case: EREERA).
5. The agreed plan for implementation of regional standards continues being implemented. This means that the transition actions needed and previously agreed continue their implementation.
6. Methodology for a regional transmission tariff and wheeling services is agreed, put in place and tariffs are actually calculated and enforced by EREERA. The General Secretariat will provide its inputs as necessary and will collaborate specially in building consensus among the market participants and member States.
7. Agreement on enforceability of regional transmission projects and reinforcement of domestic transmission systems is reached and implemented.
8. Training: this is a fundamental aspect during stage 1 in preparation of stage 2. Two main components need to be distinguished:
  - a. Training at the level of market operator. There will be specific needs of training to operate the day - ahead market and trading with transit through third countries.

- b. Training at the level of market participants (utilities) and domestic TSOs so they are capable of trading efficiently and operating the domestic systems safely and meeting the regional standards (TSOs)

### **4.3. PREPARATORY TASKS FOR PHASE 3**

Market phase 3 is expected to happen in the long term; therefore many things will have changed compared to current situation and assumptions made today. However some key preparatory aspects can be pointed out.

The key preparatory aspects for phase 3 that have to be carried out **during phase 2** are:

1. An agreement on the new markets that will be introduced such as ancillary services market (some AS), financial products, etc.
2. The development of the market rules for the new markets. From the formal point of view this corresponds to a "modification of the market rules" even if it is a new set of rules that have to be developed for the new markets. The market rules provide (normally) for the procedure to modify them. In this procedure the "leader" and responsible is normally the regulatory authority even if the MO has a key role in the whole process being the institution which is applying the rules daily.
3. The revision of whole market rules. Market rules (as a whole) will have to be reviewed so as to ensure they are consistent with the amendments required to introduce the "new markets".
4. The development of the tools for transmission capacity management adapted to the new markets. This means making a decision on the methods that will be applicable to allocate transmission capacity (if needed). For example if there is a "cold reserve" market, it is necessary to ensure that the capacity to evacuate that reserve will be available if the reserve is needed. The question is then, how will be the transmission capacity managed to ensure this cold reserve will be really available is needed?
5. Approval and adoption of regional master plan (transmission).

This means that the outcome of the regional master plan is enforceable to the different member States. In other words, there must be an agreement regarding this fact: the result of regional master plan (in transmission) is enforceable. It could be argued the need of this agreement for the market development. In fact, phase 3 proposes a sophisticated market (or markets) which will need an adequate transmission infrastructure. A way to ensure that this infrastructure is in place, and therefore the market will be able to perform well, is having this agreement (or capacity to make projects obligatory). If it is noticed that there will be a problem with the transmission infrastructure, then the required reinforcements can be decided and enforced and this way avoid high costs for a not performing market because of inadequate transmission infrastructure.

6. A new method for transmission pricing may be needed and congestion management tools will have to be developed. "Congestion management" here refers to the commercial arrangements to deal with congestion which are the implementation of the decisions taken in (4).



## 5. SUMMARY OF TASKS AND RESPONSIBLE

The next table shows in a summarised manner the tasks that need to be carried out for preparation of each market phase.

The different columns have the following meaning:

1. **Phase:** indicates the market phase.
2. **Task Description:** describes the task that has to be carried out and follows the same order in which tasks were described in previous points.
3. **Leader:** indicates the institution which is responsible for leading, coordinating and encouraging the task is carried out. In some cases a task has to be carried out by countries at domestic level; in this case there is an institution (generally the WAPP General Secretariat) which is expected to be responsible of over viewing this task is actually carried out and help overcome eventual difficulties.
4. **Comments:** are other relevant comments regarding the task.

Table 1: Summary of Tasks and Responsibility for Execution

Phase	Task Description	Responsible	Comments
Preparatory Activities for Phase 1	Develop and implement a dispute resolution procedure.	ERERA	Coordination with the dispute resolution procedure established in the Articles of Agreement.
	Train professional staff for dispute resolution	ERERA	
	Decision for allocating the market operation functions in an institution.	General Assembly (General Secretariat)	Preliminary decision made on allocating functions in existing ICC and spin off ICC for the market second phase as an independent regional market operator.
	Implement decision on allocation of responsibilities of market operation	General Secretariat (ICC)	
	Establishment of the MO with the needed infrastructure	General Secretariat (ICC)	
	Development of "contract templates" for trading and the procedures for registering in the MO	General Secretariat (ICC)	The current TA will develop the contract templates. The procedure should be later developed by the MO as part of its initial activities
	Approval of contracts and procedures regarding contracts	ERERA General Secretariat	Contracts templates are part of this TA. Contract procedures are set by the MO
	Development and approval of regional market rules	ERERA General Secretariat	Market rules development coordinated by GS under this TA but final approval and enforcement should be made by ERERA.

Phase	Task Description	Responsible	Comments
	Agreement on a “glide path” to regional standards and operational procedures	General Secretariat	The GS should lead a process where countries agree on this point.
	Internalisation by the countries of contracts, contracts procedures, regional market rules, regional standards adjustments and operational procedures	General Secretariat ERERA	The GS and ERERA should monitor a process where countries carry out these activities.
	Development of a training program	General Secretariat	This TA will propose an initial training program
	Implementation of the training program	General Secretariat	
Preparatory Activities for Phase 2	Spin off ICC from WAPP structure and consolidate it as independent regional MO	General Secretariat	
	Equip MO with the hardware and software necessary for phase 2	MO	
	Countries implement open access in their transmission systems	ERERA	
	Market rules for this stage are reviewed and “fine tuned” if necessary	ERERA	
	The agreed plan for implementation of regional standards is monitored and enforced	ERERA	
	Methodology for a regional transmission tariff and wheeling services is agreed, put in place and tariffs are actually calculated and enforced.	ERERA General Secretariat	ERERA should take the lead in this task. General Secretariat provides inputs and collaborates in building consensus.

Phase	Task Description	Responsible	Comments
	Agreement on enforceability of regional transmission projects and reinforcement of domestic transmission systems.	Executive Board (General Secretariat)	This is an agreement that has to be reached at high level so it is enforceable. The GS would promote this agreement.
	Training	General Secretariat	
<b>Preparatory Activities for Phase 3</b>	Agreement on the new markets that will be introduced (ancillary services, financial products)	General Assembly (General Secretariat)	The decision should be approved by the GA but the GS should foster the achievement of consensus
	The development of the market rules for the new markets	ERERA MO	MO has a key role in the Market Rules development; procedure is set in market rules themselves, ERERA is the one who finally approves.
	The revision of the Market Rules	ERERA	Review of the whole market rules to ensure consistency with rules developed for new markets
	The development of the tools for transmission capacity management adapted to the new markets	ERERA	
	Approval and adoption of regional master plan (transmission)	Heads of State of ECOWAS	
	Transmission tariff and congestion management	ERERA	Refers to the commercial arrangements consistent with decisions made before regarding congestion management.

## 6. TASKS ORDER OF PRECEDENCE

The following diagram shows a logic order (in a timeline) of the previously discussed tasks. This diagram does not intend to establish dates since it was already mentioned that the market evolution cannot be defined ex – ante by dates but it will be defined by the achievement of the conditions precedent for each phase. Therefore, this diagram proposes “an order” in which the different tasks should be approached.

Figure 3: Order of Precedence of the Different Tasks

Task #	Task	Preparation Phase 1	Preparation Phase 2	Preparation Phase 3
Ph 1.1	Develop and implement a dispute resolution procedure.			
Ph 1.2	Train professional staff for dispute resolution			
Ph 1.3	Decision for allocating the market operation functions in an institution			
Ph 1.4	Implement decision on allocation of responsibilities of market operation			
Ph 1.5	Establishment of the MO with the needed infrastructure			
Ph 1.6	Development of "contract templates" for trading and the procedures for registering in the MO			
Ph 1.7	Approval of contracts and procedures regarding contracts			
Ph 1.8	Development and approval of regional market rules			
Ph 1.9	Agreement on a "glide path" to regional standards and operational procedures			
Ph 1.10	Internalisation by the countries of contracts, contracts procedures, regional market rules, regional standards adjustments and operational procedures			
Ph 1.11	Development of a training program			
Ph 1.12	Implementation of the training program			
Ph 2.1	Spin off ICC from WAPP structure and consolidate it as independent regional MO			
Ph 2.2	Equip MO with the hardware and software necessary for phase 2			
Ph 2.3	Countries implement open access in their transmission systems			
Ph 2.4	Market rules for this stage are reviewed and "fine tuned" if necessary			
Ph 2.5	The agreed plan for implementation of regional standards continues being implemented			
Ph 2.6	Methodology for a regional transmission tariff and wheeling services is agreed, put in place and tariffs are actually calculated and enforced.			
Ph 2.7	Agreement on enforceability of regional transmission projects and reinforcement of domestic transmission systems.			
Ph 2.8	Training			
Ph 3.1	Agreement on the new markets to be introduced			
Ph 3.2	Development of the market rules for the new markets			
Ph 3.3	Revision of Market Rules			
Ph 3.4	Development of tools for transmission capacity management adapted to the new markets			
Ph 3.5	Approval and adoption of regional master plan (transmission)			
Ph 3.6	Transmission tariff and congestion management			