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ENERGY MARKETS INTERNATIONAL

DEVELOPMENT OF WAPP MARKET DESIGN AND MARKET RULES

DELIVERABLE:

Regional Electricity Market Design Final

Prepared for:

WEST AFRICAN POWER POOL

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Innovation by experience

DEVELOPMENT OF WAPP MARKET DESIGN AND MARKET RULES

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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*".

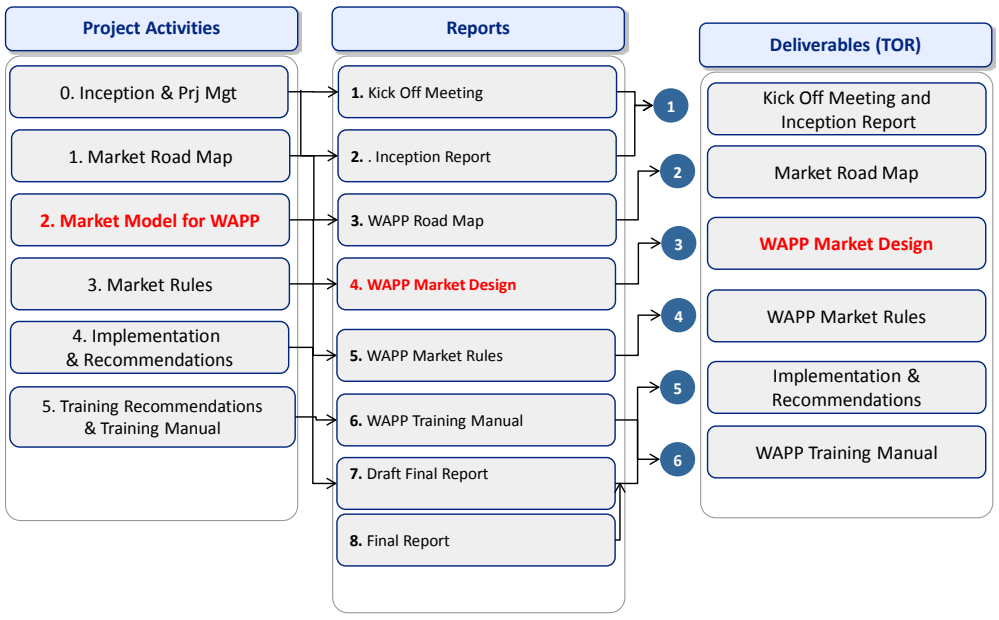
This general objective should be achieved by means of the following specific objectives / activities:

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:

To reach a clear and succinct market design for WAPP that responds to the agreed principles, it is needed to conduct an analysis of prevailing conditions in the region, however, after the discussions held during the inception mission[1] we believe that one of the options that may be suitable for the region would be based on the following principles:

1. *Formation of a **"fifteenth market"**, coexisting with the fourteen existing national markets or national systems. This "fifteenth market", with separate regional market rules, would be present only at points of a **"Regional Transmission Network" (RTN)** defined as "borders" between national markets and the regional market*
2. *The **RTN** is a network initially formed by assets belonging to the existing utilities in the region, plus new additions that might be incorporated to the regional network in the future, through different mechanisms established in the regional market regulation. The assets belonging to that integrated network will be determined periodically according to specific rules.*
3. *Needs arising from regional regulatory coordination will be dealt with by the **regional regulator**. In this institution national regulators' participation will be required to ensure and promote policy convergence, the extent of the "regional" rules, and to get consensus on regulatory settings that may be necessary.*
4. *Roles and responsibilities of the **ICC** will be part of the regional power market design and regulation however these roles have to be discussed taking into consideration the role currently decided and the needs for the regional market. Eventually a new institution could be needed.*
5. *The RTN **technical and operational coordination** will also be responsibility of a regional institution (existing or new – to be decided), involving national utilities (transmission) and others that could own RTN's assets.*

This regional power market conceptual approach strictly responds to pragmatic reasons, trying to avoid the difficulties in implementing a centralized organization based on a deep regional regulation advancing over national regulations, or even replacing them (including replacement or modification of laws, decrees, regulations, rules, standards, technical procedures, etc., which are the result of major efforts in each country to build the required consensus and reach the actual stage).

Experience in other regional markets has proven that the goal(s) of a centralized market should be framed within more long-term targets and reviewed in the light of changes and actual experiences arising from the real life of the regional power market on its way to more mature stages.

*This is compatible with our **principle approach of gradualism** without preventing the members from receiving the benefits of the regional environment, by encouraging the development of efficient, transparent and predictable regional transactions:*

[1] During the Inception Mission and then, afterwards, during the discussion of the Road Map mission, these principles were agreed as relevant for the market design.

1. *There will be an organized common market with rules based on efficiency, and shared by all countries that will trade by means of contracts and opportunity transactions between/among companies in different countries.*
2. *An environment with rules will be launched, which will create and enable regional security for generation and transmission.*
3. *Conflicts between countries arising from the administration of international transactions will be reduced.*
4. *There will be an increasing trend to share efficiency among countries, plus a gradual tendency for price discrimination affected by transmission costs.*
5. *The existence of clear rules will impact rapidly on the infrastructure development, as the existence of an institutionalized market will have all required instruments to ensure, among others, that the collection mechanisms are in place and working.*

Being said this from the conceptual point of view, the market design will involve addressing the following issues:

- *Market agents (participants):*
  - ✓ *Conditions to be met (to be a market participant)*
  - ✓ *Roles of national and regional authorities*
- *The Regional Transmission Network (RTN)*
  - ✓ *Multi proprietary regional transmission network*
  - ✓ *Regional transmission regulation system*
  - ✓ *Identification of the RTN*
  - ✓ *Regional transmission service*
  - ✓ *RTN technical and operational coordination*
  - ✓ *Expansions in the RTN – type of expansions*
  - ✓ *Tariff/pricing system for the RTN*
  - ✓ *Quality and Reliability of the Service*
- *Ways of trading in the regional market*
  - ✓ *Bilateral market (contracts)*
    - ▪ *Types of contracts*
    - ▪ *Conditions for "traditional PPAs"*
  - ✓ *Opportunity exchanges*
  - ✓ *Day – Ahead Market*
- *Governance*
  - ✓ *Regional institutions: relationship among them and with domestic authorities*
  - ✓ *Regulation: role and responsibilities of regional regulator*
  - ✓ *ICC: role and responsibilities of ICC*
  - ✓ *Market operation: allocation of responsibilities*
  - ✓ *WAPP Secretariat: roles and responsibilities*
- *Surveillance and monitoring system*

4. THE DOCUMENT

This document (WAPP Market Design) is organised in the following sections:

I. An Introduction: this section

II. The WAPP Market Design comprising the following points:

1. Introduction
2. Market Phases
3. Market Phase 1
4. Market Phase 2
5. Market Governance
6. Dispute Resolution

III WAPP MARKET DESIGN

1. INTRODUCTION

1.1. PRINCIPLES FOR MARKET DESIGN

The Market Design is the stage previous and necessary to develop the market rules. At this stage, the principles for designing the market and the way the market will work is designed for afterwards "coding" these developments into an operative document which are the "market rules".

The development of a regional market needs to be guided by some general principles. It has been agreed that the following principles would be taken into consideration for the regional market design proposal to be developed:

- **Cooperation**: The Parties have equal rights and obligations, act in solidarity and refrain from taking advantage of one another.
- **Gradualism**: Parties consider the progressive development of regional power trade. Progress towards this objective is made considering the limitations and needs of each of the participants.
- **Transparency & Non Discrimination**: the development of the rules for trading and the operation of the regional market are based on principles of transparency, a level playing field for all members and non-discrimination.
- **Competitiveness**: freedom to carry out activities aimed at providing services on the basis of objective, transparent and non-discriminatory rules.
- **Environmental Sustainability**: decisions on power system expansions are made within a framework of respect for the environment.
- **Promote generation expansion**: create the appropriate conditions for development of the generation capacity.
- **Respect national regulations**: if the establishment of a regional market implies deep modifications in domestic regulations it will not be successful. It is possible (international experience shows it) to design the regional market requiring very little or non modifications / adaptations of domestic regulations.
- **Facilitate infrastructure expansion**: the trading platform has to facilitate the infrastructure expansion: the transmission expansion since without sufficient transmission capacity there is no market and the generation expansion by promoting the development of projects which have sense with a regional optic but would not be possible only with a domestic optic.
- **Rules easy to understand and easy to implement**: rules for trading have to be clear, transparent and above all easy to understand and apply. If they are not understood or if it is difficult to trade because of the rules the market will not succeed.
- **Access to transmission infrastructure**: in other words "open access to spare transmission capacity" in order to promote maximum use of facilities.
- **Converging standards**: it is needed that countries "converge" to common standards to make possible trading without technical problems when synchronising the systems

These principles will be the "guiding principles" when developing the market design in the next points.

The main points that will be addressed in the market design are:

1. Market phase general description (introduction)
2. Conditions precedent to pass from one stage to the following
3. Market Participants
4. Transactions in the market
5. The role of the regional SMO during this phase
6. The role of the domestic TSOs during this phase
7. The regional transmission network
8. Planning and regional projects

1.2. THE REGION

The WAPP region involves fourteen (14) countries of West Africa: Mali, Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Burkina Faso, Nigeria and Niger.

Currently in the WAPP region there are exchanges between countries but they are weak compared to their total generation due to lack of infrastructure and low generation capacity in the different countries compared to their domestic demands. The following table shows partial data about countries with exchanges for the first half of years 2007 and 2008.[2]

Table 1: Exchanges in the WAPP Region (MW) First Semester 2007 and 2008

		2007- 2008 comparison of first semester							
		Togo/Benin	Burkina Faso	Cote d'Ivoire	Ghana	Mali	Senegal	Nigeria	Tot
Hyd	2008	40685	59251	815327	2820094	494970	0	3430487	7660814
	2007	24799	36442	691628	1992903	404911	0	3585085	6735769
	Variation	64,1%	62,6%	17,9%	41,5%	22,2%		-4,3%	13,7%
Therm	2008	870	222413	2007066	1251375	70532	980559	6696211	11229027
	2007	156970	251868	1869081	1672679	118253	951017	7349489	12369357
	Variation	-99,4%	-11,7%	7,4%	-25,2%	-40,4%	3,1%	-8,9%	-9,2%
Import	2008	660728	72247	1698	114958	50016	126153	0	1025799
	2007	399490	60111	0	66981	27897	69255	0	623734
	Variation	65,4%	20,2%	#DIV/0!	71,6%	79,3%	82,2%	#DIV/0!	64,5%
Export	2008	0	0	275617	271057	162563	0	498512	1207749
	2007	0	0	179304	159702	102961	0	410198	852165
	Variation	#DIV/0!	#DIV/0!	53,7%	69,7%	57,9%	#DIV/0!	21,5%	41,7%
Total Generated	2008	41555	281665	2822393	4071469	565502	980559	10126698	18889841
	2007	181769	288311	2560709	3665582	523165	951017	10934574	19105126
	Variation	-77,1%	-2,3%	10,2%	11,1%	8,1%	3,1%	-7,4%	-1,1%
Gross consumption	2008	702283	353912	2548474	3915370	452955	1106712	9628186	18707892
	2007	581258	348422	2381405	3572861	448101	1020272	10524376	18876695
	Variation	20,8%	1,6%	7,0%	9,6%	1,1%	8,5%	-8,5%	-0,9%

As it can be seen from the table above, exchanges (exports and imports) have had an important growth in 2008 (first semester) compared to 2007 same period. Exchanges are still relatively small compared with total generation: 1.200 GWh of export compared to 18.900 GWh of total generation in the period which means that exports have been approximately 6% of total generation. But these figures show a potential for the regional market because of their growth on one side and because although exports seem small compared to generation they are not negligible at all. Just as an example, the SIEPAC (the Central America regional market) which is an already ongoing market and "successful", has lower levels of exchanges than these mentioned for WAPP region during 2008 (first semester).[3]

The WAPP has recognised that transmission infrastructure is a key element to make possible the development of a regional power market thus, an ambitious plan for infrastructure development has been developed. This plan involves 5 sub – programs:

[2] Source: WAPP

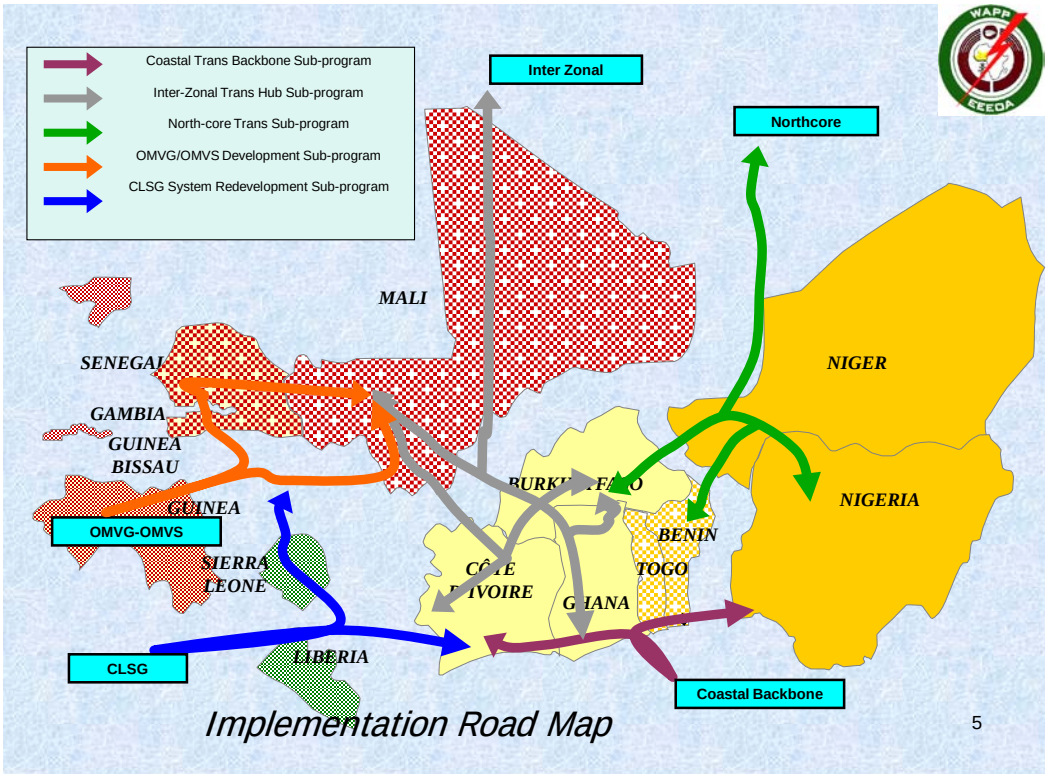
[3] If we consider the year with highest exchanges in SIEPAC the relationship between exports and total generation was less than 3,5%; during 2008 the relationship was less than 1%.

- Coastal Transmission Backbone Subprogram (Côte d'Ivoire, Ghana, Benin/Togo, Nigeria).
- Inter-zonal Transmission Hub Sub-program (Burkina Faso, OMVS via Mali, Mali via Côte d'Ivoire, LSG via Côte d'Ivoire).
- North-core Transmission Sub-program (Nigeria, Niger, Burkina Faso, Benin).
- OMVG/OMVS Power System Development Subprogram (The Gambia, Guinea, Guinea Bissau, Mali, Senegal)
- Côte d'Ivoire-Liberia-Sierra Leone-Guinea Power System Re-development Subprogram (Côte d'Ivoire, Liberia, Sierra Leone, Guinea).

On top of these transmission development programs, a Strategic Generation Subprogram (Emergency Power Supply Security Plan) is in place.

The following picture shows the transmission development projects that are the result of a regional master plan and, in a way, will structure the regional market development.

Figure 2: Foreseen Regional Transmission Infrastructure



Source: WAPP

Indicative dates of commissioning and implementation status of the different transmission / generation projects are:

- 225 kV Bobo Dioulasso – Ouagadougou: OPERATIONAL SINCE DECEMBER 2009
- 330 kV Aboadze (Ghana) – Volta (Ghana); IMPLEMENTATION: 2010
- 330 kV Volta (Ghana) – Lome "C" (Togo) – Sakete (Benin); IMPLEMENTATION: 2013
- 60 MW WAPP Felou Hydropower; IMPLEMENTATION: 2013

- 225 kV Bolgatanga (Ghana) – Ouagadougou (Burkina Faso); PRE-INVESTMENT: 2014
- 147 MW WAPP Adjarala Hydropower – FINANCING REQUIRED: 2014
- 330 kV Birnin Kebbi (Nigeria) - Bembereke (Benin) – Niamey (Niger) – Ouagadougou (Burkina Faso); PRE-INVESTMENT: 2014
- Cote d'Ivoire – Liberia – Sierra Leone – Guinea Interconnection Project – PRE-INVESTMENT - FINANCING MOBILISED: 2014
- 330 kV Aboadze (Ghana) – Prestea (Ghana) – Kumasi (Ghana) – Han (Ghana) + Tumu (Ghana) – Han (Ghana) – Wa (Ghana); PRE-INVESTMENT - 2015
- Han (Ghana) – Bobo Dioulasso (Burkina Faso) – Sikasso (Mali) – Bamako (Mali); - FINANCING REQUIRED: 2015
- 330 kV Riviera (Cote d'Ivoire) – Prestea (Ghana) – PRE-INVESTMENT: 2015
- 64 MW WAPP Mount Coffee Hydropower – PRE-INVESTMENT: 2015
- Hydropower sites at Kaleta, Sambangalou + 225 kV Interconnection Line - IMPLEMENTATION FINANCING REQUIRED: 2015
- 225 kV Nzérékoré (Guinea) – Fomi (Guinea – Bamako (Mali); PRE-INVESTMENT - 2016[4]

This means that by the end of 2015 there will be a certain level of transmission capacity in the region that will make possible the development of the regional market. At the same time, these dates are important to plan the market development stages. It would be important that market arrangements are in place when the different new facilities are commissioned.

From the point of view of the power sector organisation in the different countries, the best part of them is under the model of state owned integrated utility. Although some of them have processed some type of reform, the State owned utilities are predominant in the region. Nigeria is an exception which has processed an unbundling of the company and is currently in the process of privatising all assets except transmission which will be kept as state owned monopoly.

[4] Source: WAPP presentation during Inception Mission

2. MARKET PHASES

The implementation of the regional market in the WAPP region is foreseen in phases; the evolution from the current situation where some trades are carried out using the existing transmission infrastructure and negotiated on a case by case basis is expected to evolve through different stages until a situation with a liquid and competitive regional market with different products to be traded is achieved.

Three phases are considered:

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
    - Market operator: appoint an institution which will begin developing market operation functions
2. **Phase 2**: based on the preparations carried out during the 1st phase, and will include but not limited to the following:
    - Bilateral agreements with transit through third countries, based on standard commercial instruments
    - Transactions can be carried out between individual agents of the countries
    - Back up of contracts in the market (possibility)
    - Short term exchanges through day ahead market (regional optimization model)
    - Regional transmission pricing
    - Regional System and Market Operator (SMO)
3. **Phase 3**: a long term vision which would include:
    - A liquid and competitive market in the region made possible by the availability of enough regional transmission capacity and enough reserve in the countries so as to make possible a competitive market.
    - Countries or a group of countries can voluntarily decide to put their resources under a common optimisation system. This phase can coexist for some time with phase 2.
    - Possibility of trading different product integrating other markets: market for some ancillary services, financial products.

The current document corresponds to the market design for phases 1 and 2. It is not realistic to approach today the market design for phase 3 since it is expected to happen in the long term and its design will depend on several issues such as: actual development of phases 1 and 2, evolution of the region in terms of

infrastructure, evolution of the policies in the region, technical evolution, etc which today are impossible to assess or estimate how they will evolve.

The market design for phases 1 and 2 is then detailed in next two points. The market governance and dispute resolution procedure are approached in another two points since they are relatively stable in the two considered phases.

3. MARKET PHASE 1

The following points describe the market Phase 1 following the previously mentioned structure:

1. Market phase general description (introduction)
2. Conditions precedent to pass from one stage to the following
3. Market Participants
4. Transactions in the market
5. The role of the regional SMO during this phase
6. The role of the control areas during this phase
7. The role of the domestic TSOs during this phase
8. The regional transmission network
9. Planning and regional projects

3.1. INTRODUCTION: MARKET PHASE 1 GENERAL DESCRIPTION

The following are the main characteristics of this market phase:

- **Trade**: bilateral agreements, basically between neighbouring countries, however, trade already exists with transit through a third country. This trade with transit through third countries will be maintained as today.

  Trade will be "formalised" through standard contracts.
- **Transmission pricing**: Payment for use of transmission infrastructure will be agreed by the intervening parties.
- **System and Market Operator**: an institution will be appointed to perform the market operation functions required during this stage as well as some functions typical of a system operator.
- **Regulatory functions**: ERERA is the established regional regulator and has all the required capacities according to the existing WAPP framework.

3.2. CONDITIONS PRECEDENT TO INITIATE PHASE 1

It has to be recognised that trade is already ongoing in the region. An important aspect to underline is that existing agreements will be honoured and the trading conditions maintained unless agreed by the parties. If possible, parties will make all the reasonable efforts to adapt the existing agreements to the market phase conditions.

The focus or main characteristic of this phase will be the preparation of rules, institutions and regulations required for the implementation of the regional market, namely the next phase.

The following are conditions that theoretically should be met to consider that market phase 1 is started. However, some of them could be achieved during phase 1; in the list below it is specified those which are mandatory before the phase starts and those that can be achieved during market Phase 1:

1. An institution has been officially charged with the system and market operation functions needed for this phase and has a work plan for its implementation. These functions are detailed in a specific point below. This

is mandatory before phase 1 starts because currently there is no institution in the WAPP institutional framework entitled to carry out these required functions.

2. The institution in charge of SMO functions has the infrastructure tested and resources needed trained to carry out its assignments. This has to be achieved during market phase 1.
3. ERERA has implemented the dispute resolution procedures. Since trading is bilateral during phase 1, contracts could foresee a dispute resolution procedure if ERERA cannot implement promptly this task; the procedure established in the Articles of Agreement can also be used meanwhile.
4. Contract templates have been approved. This is mandatory before market phase 1 starts.
5. The institution in charge of SMO functions has developed the procedures, and ERERA has approved them, for administration of contracts and registering of market participants. This is mandatory before market phase 1 starts.
6. Market rules for Phase 1 have been officially approved. This is mandatory before market phase 1 starts.
7. An agreement on regional standards to operate and operational procedures has been reached. A period of time has been approved for these standards to be considered as enforceable for market participants. The compliance, monitoring system is part of the agreement. This agreement has to be on line with the "Operational Manual" and should be achieved during market phase 1.

3.3. MARKET PARTICIPANTS

The WAPP region has an heterogeneous organisation of the countries' power sector, some of them are vertically integrated utilities, others have a partial unbundling or are in the process of having a partial unbundled sector and others like Nigeria have totally unbundled the sector and are in process of privatisation either generation or distribution (demand).

The regional market organisation has to cope with this heterogeneity and has to provide the possibility for different types of participants to trade in the regional market.

During market Phase 1 market participants in the regional market will be the entities appointed by countries, one entity per country representing the country's power sector. The corresponding authority in each country will communicate ERERA and the institution playing the role of regional market operator the institution representing the country's power sector in the regional market for this phase 1.

It is expected that the institution playing the role of national system operator or single buyer would the best placed to represent this role (country's representative in the regional market).

An IPP which has a regional project is considered as a special case and it can be a market participant under a special approval of ERERA. This ERERA's approval does not overrun any decision of the domestic authorities where the IPP is localted.

3.4. TRANSACTIONS IN THE REGIONAL MARKET

The regional market is intended to be during phase 1 a bilateral market, that is to say, trade is carried out through bilateral agreements (contracts) between the parties (market participants).

It is possible that these type of contracts have to coexist with traditional PPAs, either because they already exist or because it is a contractual form used for system expansion and attract private sector participation.

3.4.1. TRADITIONAL PPAS

The traditional concept of a Power Purchase Agreement (PPA) is to create a contract between buyer and seller that guarantees a return for the Seller over time which covers the investment cost and provides a reasonable margin. Contracts of this nature are common in developing countries where the financial institutions are reluctant to lend without there being strong contractual measures to ensure that debts are repaid or the risks of non-payment are minimised as much as the lenders can make it.

PPAs come in many forms and variants, but their common characteristics are:

- Capacity payments
  - Associated with capital costs
  - Generally “use it or lose it’
- Energy or variable payments
  - Usually associated with fuel and other variable costs
  - May be “take-or-pay” or may be for actual generation, depending on the capacity charges. “Take-or-pay” generally means that a payment is made regardless if certain quantity is taken or not. If there is a take (of the output by the off-taker) then there is a payment but if there is no take there is still a payment.
- Liquidated damages
  - Penalties paid by the asset owner when the planned capacity is not available

The tenor of a PPA is typically very long (eg up to 25 years) and includes the whole of the loan term. Sometimes the PPA has associated transmission lines which are part of the project. Since it is very difficult to predict events many years ahead, the terms of a PPA frequently begin to unfairly favour one party over the other – the allocation of risk becomes unbalanced. As a consequence long and expensive re-negotiations, sometimes ending with arbitration or court proceedings are far from unusual.

From the point of view of economic theory (according to theoretical literature) PPAs, especially with take or pay conditions, hinder an efficient market environment, since they perpetuate (in the long term) the use of resources which may become economically inefficient when compared with the cost of importing electricity or producing it through cheaper methods.

The major barriers that PPAs create for efficient market trading are that:

- Access to the transmission network may be restricted;
- Buyers are forced to take expensive energy when there is cheaper energy available in the market.

Both issues have the potential to stifle the liquidity which is essential for the market to work efficiently. Existing PPAs will have to be dealt with as an implementation issue, and a strategy for dealing with stranded assets is generally devised and agreed if necessary.

However, existing PPAs must be accommodated and since they are a necessary

and powerful tool for securing new infrastructure investment it is not possible to ban them in the region.

The negative impacts of traditional PPAs can be mitigated if the following conditions are met:

- **Pricing formula is a two term formula, one term paying for capital costs (capacity – US$/MW) and the other term paying for variable costs (energy – US$/MWh).**
- **No "take or pay" clause is included.**
- **The PPA makes available the transmission capacity it does not use; the use of transmission capacity is declared on a daily basis (day – ahead) to the SMO and the SMO makes available the spare capacity for other transactions.**

3.4.2. BILATERAL CONTRACTS IN THE MARKET

During market Phase 1 trade will be carried out through bilateral contracts only; these contracts can be long, medium or short term.

The regulator (ERERA) will approve the templates to be used for trading and market participants will make all reasonable efforts to use these templates since they will minimise transaction costs and will make easier the tasks of the market operator.

Contracts will be settled bilaterally, that is to say, parties will invoice and pay each other according to the contract terms.

Contracts will be approved and registered by the institution charged with SMO functions.

In this document, to distinguish between the traditional PPAs and contracts that will be struck in the new market, the designation "Bilateral Agreement" (BA) is used to denote all contracts which control a cross border exchange of energy or capacity. Three basic forms of BA are envisaged, dealing with different circumstances. **Duration of different types of contracts proposed here are indicative**.

a) Long Term BA

A long term Bilateral Agreement is intended to play a role similar to traditional PPAs in the sense of securing long term agreements for energy exchange but without any direct links to a construction project. They may have a term of anything from 6 months to years duration. They are expected to be utilized:

- For inter-utility agreements where the supplying utility may choose which ever source of generation is appropriate to fulfil the contract terms;
- Commercial portfolio generation companies who will self dispatch their plant in a similar way to the traditional utilities;
- Contracts using existing plant or interconnectors that are free of any lending covenants;

As the market matures and investors can observe that there is a liquid market for their generation, the need for long term PPAs to secure finance should diminish. Long Term BAs will then be the basis for generation projects where some or all of the output of the new plant is intended for the international market, transmission infrastructure where the new line is either a cross border interconnector or forms part of an internal transmission network that will be used to wheel electricity between interconnector nodes, or for those projects which are a combination of both.

As with the traditional PPAs, Long Term BAs seek to fairly allocate risk between the stakeholders in the project. The risks may be categorised as:

- **Market Risk:** risks associated with estimations of the long term value of the product;
- **Commercial Risk:** risks associated with the ability of the buyer to pay for the product over an extended period (particularly relevant where there is a limited number of potential alternatives);
- **Regulatory Risk:** risks associated with potential changes in the structure and regulation that could adversely affect the contract performance;
- **External Risk:** Events outside of the control of the contract counterparties that may frustrate the contract, frequently covered with 'force majeur' clauses – war, natural disasters etc;
- **Political risk:** Events associated with radical changes in policy that would adversely affect the contract.

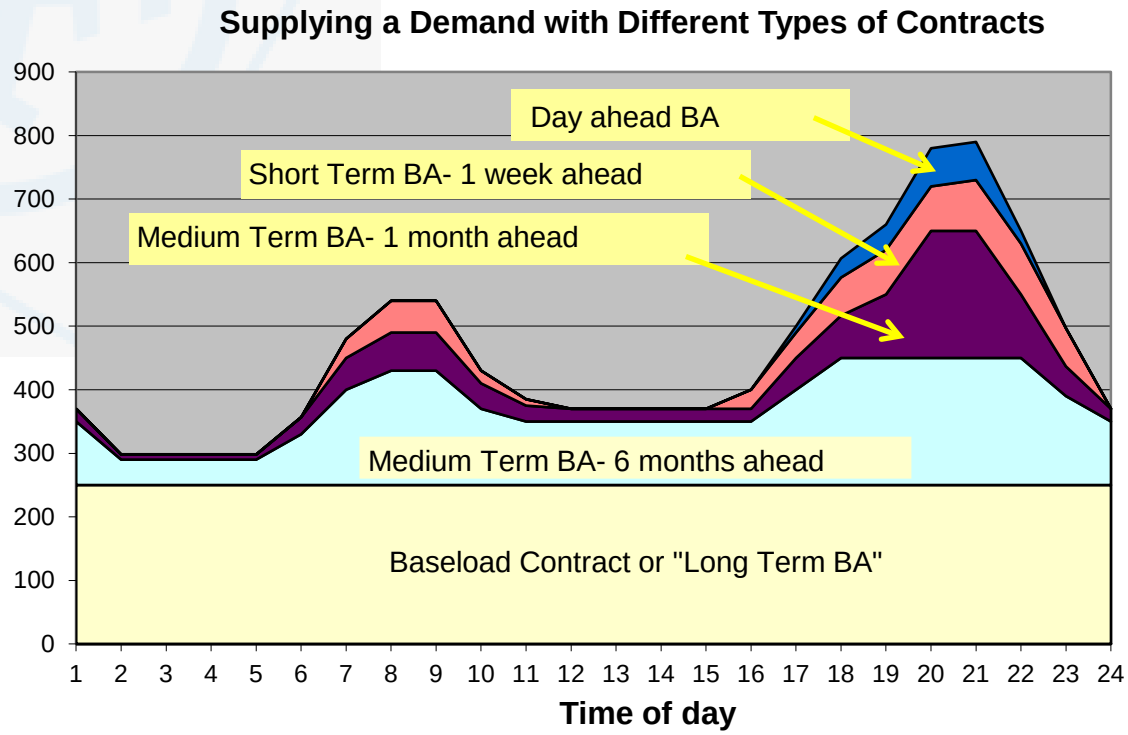
As mentioned above, the primary risks to the market concern the limitation of access to the transmission network and the blocking of access to internationally available lower priced electricity than that made available by the project.

It is recommended that the standard Long Term BA will include explicit clauses to require that any unused contracted capacity on the interconnector or line is declared and made available to the SMO to enable trading. The declaration should include the time, duration and amount of capacity that is not utilized in the contract. A similar declaration should be made to the National TSO for any line within the national transmission network that are or may be used to wheel electricity.

b) Medium Term BA

Medium term bilateral contracts are intended to be an important type within the regional market. The following figure gives an example of how bilateral contracts could be stacked one upon the other to fill the demand a utility faces. In this figure it is presented a theoretical case where a "demand" is supplied totally with different types of contracts:

Figure 3: Using Contracts to Supply a Demand



In the schematic above, the Medium Term BAs are used to try to fill the gap between the long term agreement and actual demand, since when medium term agreements are struck, actual demand conditions are better known than when the long term one was signed. Short term agreement will then fill the remaining gap.

Medium Term BAs are relatively simple contracts as there is no need to deal with the construction of facilities. They contain standard terms and conditions to define the concepts used in the contract and to specify the rights and obligations of the participants. This is followed by the commercial terms of the contract and will detail:

- The term of the contract – start and end dates
- The amount of energy to be traded for each day of the term of the contract, and the price to be paid for each trading interval. The profiles may be expressed as days of the week, season of the year etc, rather than an explicit entry for each trading interval in the contract term.
- The price of electricity for each trading interval or group of intervals
- Injection and offtake points

As medium term BAs may last for up to a year, the contract would have provision for price reviews based of indexing formula or simple re-negotiation.

Critically, note that Medium Term BAs are:

- Take or pay. Because of the impossibility of managing and settling variances on a multiplicity of contracts on each interconnector, settlement is to scheduled delivery and variances are managed by a balancing method.
- Energy only. Because the contracts are take or pay, there is no requirement for separate capacity payments.

In the event that organisations need to tune their position in the short term, they will need to enter into short term contracts to buy or sell to modify their profiles. If

they need to change the profile for some time into the future, they are at liberty to revise their contract subject to available capacity etc.

It is strongly recommended that the standard Medium Term contracts are based on standard templates to homogenise the terms and conditions as much as possible and hence to minimise the transaction costs (consider that given the contracts duration it is not possible to enter in long negotiations for these type of contracts). The contracts will provide for profiles arrangements in terms of profile and price, and will permit renegotiation of the variables subject to technical constraints.

The contracts will be settled on scheduled energy with variances managed through the balancing mechanism. There will be no provision for capacity charging.

c) Short Term BA

Short term BAs are intended to enable the participants to tune their contracted positions by entering contracts for relatively small amounts of electricity in the near term – 1 day to one week out. The contracts will be simplified forms of the mid-term BTA and will specify:

- the amount of electricity to be traded in the coming period for each hour separately in the period;
- the price will also be specified for each hour,
- injection and extraction points

Once entered into, the contracts will be binding, and any late adjustments will need to be made via further contracts.

The contracts will be based on the Power Pool notification of available transmission capacity in the coming period, which in its turn will be based on the declarations made by each of the participating organisations, and will be available between any two counterparties regardless of their geographical location. Available capacity will be notified to the market via a bulletin board, which will also be available for participants to advertise their own requirements to buy or sell power.

Losses and transmission charges are clearly an issue for these low volume, short term, opportunistic deals, particularly considering the length of the transmission lines that make up the WAPP. If the method of calculating transmission charges requires each individual contract to be separately considered, the value of the contracts will rapidly make the market unmanageable for many participants as the relative merits of different combinations of price and distance would have to be taken into account and the transaction costs will represent a significant proportion of the cost.

For this reason, it is proposed that in the early first Phase of the market, short term BAs are limited to electrically adjacent countries and that no charge is made for transmission costs.

When the volume of trades warrants the move, it is foreseen that this market will evolve into a fully functional cleared spot market (day – ahead market) which will also be open to non-adjacent countries within the WAPP.

It is recommended that the Short Term contracts utilize a mandatory standard set of terms with a negotiable schedule to specify the variable parameters of price, volume, term and delivery points. The standard terms could be defined in the form of an addendum to the market rules, to which all participants trading in the short term market would be bound.

It is further recommended that short term BAs should be limited to adjacent countries in the first stage of the market, and that losses and other transmission charges should not be payable on short term BAs The contracts should be settled on scheduled energy with variances managed through the balancing mechanism. There should be no provision for capacity charging.

3.4.3. THE PROBLEM OF BALANCING

The first responsibility of domestic TSOs will be to ensure the agreed flows in the interconnectors. If needed, later, the TSO will internally deal with differences that generators / demands have originated in real time operation. But for the sake of the regional market, national TSOs have to ensure that the agreed flows in the interconnectors are met.

However, it is know that this is impossible to happen in real time operation and differences arise for different and several reasons.

It is therefore needed to establish, for this market phase 1, how these differences will be settled.

There are very few examples around the world in regional markets that settle these differences through market mechanisms, such as balancing markets. The reasons for that are different, but mainly due the difficulties for their implementation and the fairness of the obtained results. In the case of WAPP, this situation is aggravated because the lack of liquidity, the lack of infrastructure and the institutional difficulties to establish a centralized pool administering all the regional resources.

In other regional markets, the chosen way to settle these differences is the Payment "in kind" of the differences verified during operation. This means, if a TSO has injected/retired less today in a certain trading period, in the future it shall have to inject/retire more in the same trading period to compensate the deviation. To make things easier trading periods are grouped for example according to: season, working/non working day, peak/off peak hours, etc.

Payment "in kind" to settle differences is the method recommended for WAPP. Though it is conceptually similar to payment according to system marginal price, payment in kind avoids discussions on this system marginal price. This is a strong advantage if we consider that at the beginning regional reliable information will be scarce, some systems may not even have that information available, and agreement on criteria to value some resources will be difficult if not impossible (hydro, indigenous resources, etc)

3.5. THE ROLE OF THE SMO DURING PHASE 1

During market Phase 1 there will be an institution appointed to carry out the SMO functions presumably the ICC. Main functions will be:

1. Coordination of scheduling pool interconnectors with domestic TSOs and control areas
2. Monitoring load flows and taking action on variances (coordinating responsible of control areas' efforts to maintain flows)
3. Balancing activities (although it is settled in kind)
4. Operational planning of the interconnectors
5. Allocation of transmission capacity to contracts

6. Administration of contracts
7. Dispute Management at an operational level (first instance for solving operational disputes)
8. Meter Read administration
9. Administration of commercial data bases
10. General administration of the institution (HR, financial administration, etc)
11. Collaboration with other regional institutions (General Secretariat, ERERA)

The regional SMO has as main functions those of a typical market operator, but it also performs some functions that are normally carried out by a system operator. These functions are namely:

1. Operational planning of interconnectors
2. Coordination of the use of interconnectors
3. Overview of flows in interconnectors and collaborate with control areas to maintain the scheduled flows
4. Allocation of transmission capacity in interconnectors

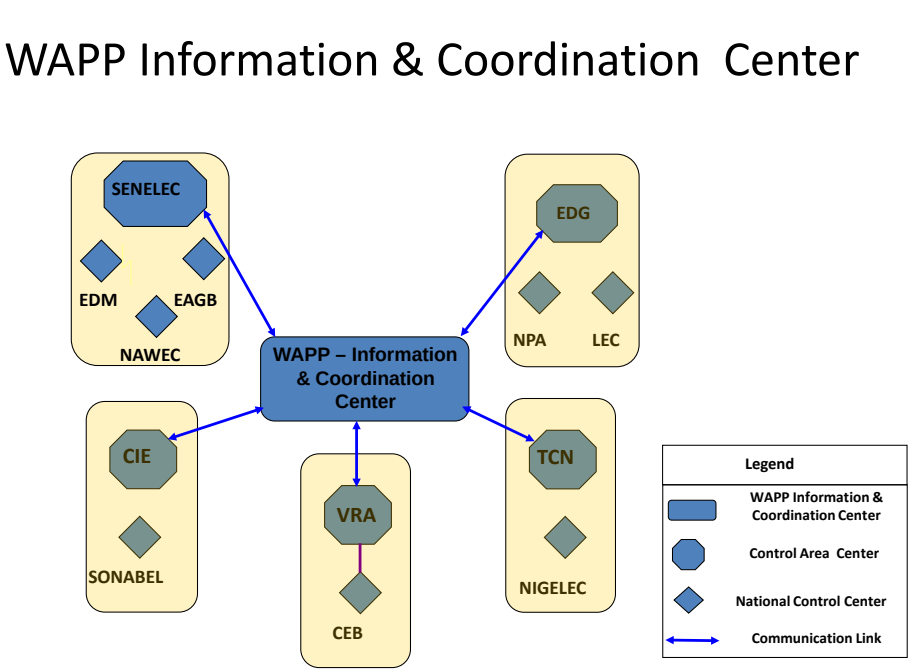
The role of the SMO is more detailed in Section III 5.3 The Regional System and Market Operator.

3.6. THE ROLE OF THE CONTROL AREA

The control areas in WAPP have an operative role, their responsibility is mainly to coordinate the operation with domestic TSOs in their areas in such a way that the flows in the interconnectors with other areas are maintained according to schedule. They do not have participation in the commercial aspects of trading in the region.

The following figure shows the region's structural organisation in control areas and the relationship with the Information and Coordination Centre.

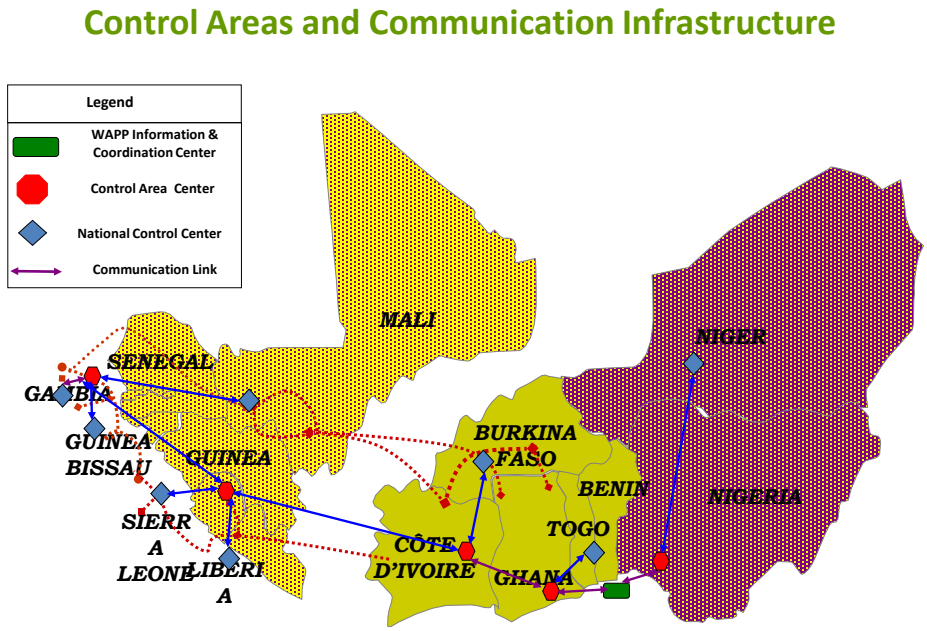
Figure 4: Control Areas and Information & Coordination Centre



Source: WAPP presentation – Role of the ICC

The following figure shows the geographical layout of the different control areas, the communication infrastructure and the Information & Coordination Centre.

Figure 5: Control Areas, Communication Infrastructure and ICC



Source: WAPP presentation – Role of the ICC

From the point of view of the regional market, main control areas' functions will be:

1. Ensure flows inter area are maintained
2. Ensure its area operates safely

3. Ensure flows intra area are maintained as far as possible
4. Keep constantly in communication with the institution in charge of market operation functions to ensure flows in interconnectors
5. Collaborate with institution in charge of market operation functions in the operational planning of interconnectors
6. Coordinate with neighbouring control areas and TSOs of its area in cases of emergencies
7. Coordinate with the SMO restoration procedures when the emergencies exceeded the control area reach

3.7. THE ROLE OF THE DOMESTIC TSOS DURING PHASE 1

3.7.1. TSO TASKS

During market Phase 1 key task of domestic TSOs will be to ensure:

a) Flows agreed at regional level are maintained in the interconnectors.

b) Technical parameters are maintained in the interconnectors.

c) Domestic system is operated safely to avoid impacts in neighbouring systems.

d) Support in emergencies for neighbouring systems is made available when possible.

e) Maintain the required communications with the responsible of its area and obey its instructions

3.7.2. THE OPERATION

The different tasks that the domestic TSO will have to perform to operate in the regional environment are schematically outlined as follows:

1. Pre –dispatch of domestic resources acknowledging expected imports/exports (depending on contracts)
2. Communication to institution responsible for regional SMO functions of imports/exports according to contracts. This stage will consider the real usage of contracts that parties declare; in a specific day an existing contract may not be totally required i.e. a long term contract which involves 100 MW may be required to be dispatched only at 90 MW. The communication to the SMO will involve this information so the remaining 10 MW of transmission capacity is made available for other trades.
3. Re – dispatch when information from regional SMO is received informing on the possibility of executing the contracts as foreseen (or not)
4. Information to control area of day ahead program
5. Real time operation
6. Reception of information on balancing from regional SMO (ex – post operation)
7. Administration at domestic level of balancing (communicated by regional SMO) emerging from real time operation.

3.8. THE REGIONAL TRANSMISSION NETWORK

The transmission network is currently formed by:

- The national transmission systems parts made available for regional trading
- Interconnectors property of national TSOs
- In the near future "Standard Purpose Entities" (SPE) that will own and operate regional transmission assets.

The key aspects regarding the transmission network during market phase 1 will be:

1. Access to the transmission capacity or allocation of the transmission capacity
2. Payment for the transmission services
3. Technical parameters
4. Emergencies

3.8.1. ALLOCATION OF THE TRANSMISSION CAPACITY

Where, at certain times of day, an interconnection between countries is unable to meet the full requirements placed upon it by buyers and sellers, that line is said to be "congested". The implication of this is that some customers will have to pay a higher price for their electricity than would be the case if the line were not constrained. In a pool model the result would be that all customers on the constrained side of the interconnection would have to pay a higher price than those on the unconstrained side (the market is said to be 'split'); in a bilateral model individual market buyers unable to procure capacity would be unable to make a contract with suppliers upstream of the constraint and would therefore be forced to purchase the higher priced electricity from an alternative source.

Transmission capacity should therefore be allocated to market participants in a fair and transparent manner, both to promote the efficiency of the market and to forestall any potential abuses of market power. The allocation of transmission bestows Physical Transmission Rights (PTR) to the purchaser, which in some models may be re-sold. Where the Physical Transmission Rights are traded separately to the energy contracts, it is prudent to acquire the rights before arranging the energy contract.

There are different methods to allocate capacity, each with advantages and disadvantages and the choice of method will depend on the local market environment. Note that more than one of these methods may be adopted simultaneously to accommodate different segments of the market:

1. **First Come First Served**. In this scenario, the Market Operator schedules all of the capacity on an interconnector in accordance with the order in which the underlying bi-lateral arrangements were made. Once the available capacity for any particular time segment is exhausted, then the Pool Operator rejects the contracts. This method may be used up to the day ahead of dispatch, with the Pool Operator publishing any unallocated capacity to the Market. This mechanism will usually be in force by default where bi-lateral agreements were in place before the formalization of the Regional Pool.
2. **Pro-rata rationing**. Generally used for spare capacity in excess that which is allocated for bilateral contracts, the Pool Operator publishes a schedule of spare capacity for a given period, and accepts requests for transfer capacity. If more is requested than is available, then each participant receives an allocation in the ratio of the total requested capacity divided into the total available capacity.
3. **Market Splitting**. Where all or some of the electricity trades are conducted through a power exchange, for example a spot market, then transmission allocation may be achieved through market splitting. In this model, the pool

operator first executes a trial schedule without any regard to system constraints. If the result of the trial is feasible, then there is no requirement for allocation. However, if there is a constraint, the Market then is split and new prices are calculated on each side of the constraint by the optimisation dispatch model.

4. **Explicit Auction**. The Pool Operator organises an auction of available capacity on the interconnectors with each market participant biding for transfer capacity in one direction. The Pool Operator accepts bids until the interconnector is full. This is very efficient in market terms but complicated where buyers and sellers are seeking capacity on several interconnectors to fulfil their proposed contacts. The rights obtained can later be negotiated in a secondary market if not used.

It is recommended that for the first stage the method of "firs come – first served" is used. Although this method can be criticised because it does not foster "efficiency" it is simple and transparent which are conditions very valuable for the first phase when market is beginning.

The allocation has to be made through a procedure designed by the institution in charge of SMO functions and approved by the regulator (ERERA) which guarantees fairness and transparency.

To avoid the scenario where a market participant who is awarded transmission capacity does not use it and blocks this capacity or pretends to sell it, the following conditions have to be added:

- The transmission capacity allocated cannot be transferred.
- The transmission capacity allocated has to be used by the one to whom it was allocated (a party in a bilateral contract), that is to say, there cannot be "traders" of transmission capacity.
- If the transmission capacity allocated to a participant is not used or partially unused, the market participant has to declare it to the institution in charge of SMO functions and make it available for others. It is for this reason that parties in bilateral contracts have to communicate daily to the SMO the use they will make of the contract (transmission capacity) to enable, this way, making available the unused capacity.
- The SMO and the regulator (ERERA) will have powers to monitor and investigate the behaviour of market participants regarding how they are using their allocated transmission capacity and if they are declaring correctly ex – ante the use of this capacity.

3.8.2. PAYMENT FOR THE TRANSMISSION SERVICES

During the market phase 1 it is expected that the best part of transactions will be carried out between neighbouring countries although today already exist transactions with transit through a third country.

During market phase 1 transactions with transit through third countries are not banned but they have to be treated specifically since market rules for this phase do not provide for this case.

The principle for payment of transmission services is that they will be agreed between the parties. This is simple, efficient and feasible for transactions between neighbours since the interconnectors already exist and basically they are part of the utilities' assets already.

If a transaction with transit through a third country occurs during this market phase, then the parties in the contract will have to incorporate and negotiate with

the country which is providing the wheeling services the admitted losses and the fee for wheeling.

3.8.3. TECHNICAL PARAMETERS

Technical parameters to be maintained in the interconnectors have to be agreed and publicised so they can be monitored. This is a matter of regional grid code, in this case “Operational Manual”

3.8.4. EMERGENCIES

The “Operation Manual for WAPP Interconnected Power System”, in its chapter “Policy 5 Emergency Procedures” provides for the emergency situations. This policy has to be followed in case of emergencies; on top of these provisions it has to be added that the institution in charge of market operation functions has to be informed at the same moment the ICC is informed of any contingency as well as of all the steps taken to restore normal operation conditions.

Restoration of normal operation conditions has precedence on the accomplishment of any scheduled transaction. Once normal operation conditions have been restored, the institution in charge of market operation functions will assess the impact of the contingency on the commercial transactions.

3.9. PLANNING AND REGIONAL PROJECTS

The availability of infrastructure is a key element to make possible the market development:

- **Transmission infrastructure**: it is obvious the need of enough transmission capacity in the region to make possible a liquid market and dynamic exchanges among the different market participants. An efficient day – ahead market for example, will not be possible if not enough transmission capacity is available; in that case, market splitting will happen and there will be regions which will not be benefited from cheap generation.
- **Generation infrastructure**: if there is not enough reserve capacity in the region, the day ahead market will be easily manipulated and market power will be easy to exercise generating spurious earnings to some participants.

The WAPP has currently a process for regional planning and project implementation where the General Secretariat plays a key role. This process is working well and can be considered a “model” in the region.

It is recommended to continue the application of this method and try to move forward to a situation where countries plan their domestic expansions more and more in connection with the regional plan and where regional projects are implemented with more certainty. The “Governance” section includes a recommendation on formally establishing the “Strategic Planning Committee” as responsible of leading the process of planning regularly.

Up to the moment the stress has been put in transmission projects although some generation projects are under consideration. It is recommended that for the next regional plan an integrated generation – transmission planning is carried out and generation projects are also considered as important as transmission ones.

4. MARKET PHASE 2

The following points describe the market Phase 1 following the previously mentioned structure:

1. Market phase general description (introduction)
2. Conditions precedent to pass from one stage to the following
3. Market Participants
4. Transactions in the market
5. The role of the regional SMO during this phase
6. The role of the control area
7. The role of the domestic TSOs during this phase
8. The regional transmission network
9. Planning and regional projects

4.1. INTRODUCTION: MARKET PHASE 2 GENERAL DESCRIPTION

The following are the main characteristics of this market phase:

- **Trade**:
    - bilateral agreements, between neighbouring countries, as in phase 1
    - trade (bilateral agreements) with transit through third countries
    - bilateral transactions can be carried out between individual agents of the countries
    - day ahead market

  Bilateral trade "formalised" through standard contracts same as in phase 1.
- **Transmission pricing**: Payment for the use of transmission infrastructure will be according to a transmission tariff or "payment for transmission services" approved by the regulator (ERERA) and enforceable (no possibility for TSOs of charging different fees).
- **System and Market Operator**: the regional institution which has been in charge of SMO functions during market Phase 1 is transformed into a full regional system and market operator (a condition precedent to begin phase 2).

  Regional SMO has as main functions those of a typical market operator, but it also performs some functions that are normally carried out by a system operator. Details of "system operation functions" are presented in the Market Governance section: "III 5.3 The Regional System and Market Operator"
- **Regulatory functions**: ERERA is the established regional regulator and has all the required capacities according to the existing WAPP framework.

4.2. CONDITIONS PRECEDENT TO INITIATE PHASE 2

An important aspect to underline is that when market Phase 2 begins there may still be existing agreements previous to phase 1 or PPAs signed during phase 1. These agreements have to be honoured and the trading conditions maintained unless agreed by the parties. If possible, parties will make all the reasonable

efforts to adapt the existing agreements to the market phase conditions. Regarding PPAs signed it is expected that they have respected the recommendations made, therefore it will be possible to accommodate them in phase 2 framework without inconveniences.

The following are the minimum conditions that have to be met to consider that market phase 2 is can start:

1. The institution which has been appointed to carry out regional market operation functions has been transformed into an independent regional system market operator (SMO).
2. The SMO is fully operative (it has the infrastructure tested and human resources needed trained to carry out its assignments).
3. Dispute resolution procedures are fully operative in ERERA.
4. Procedures to operate according to requirements of market phase 2 are in place, have been tested including "shadow running" of the market. Among the most important procedures:
    a. Market operation of the day ahead market
    b. Settlement, billing and payment
5. Market monitoring has been implemented to avoid undesired behaviour of market participants (namely exercising of market power and market price manipulation).
6. Market rules have been officially approved.
7. Transmission tariff methodology has been approved and is in place.
8. Previously agreed convergence to regional technical standards continues to be implemented according to schedule.
9. There is reasonable transmission capacity and generation capacity in the region.

4.3. MARKET PARTICIPANTS

During market Phase 2 a distinction has to be made according to the markets we are referring to.

For the bilateral market, the condition to be a market participant in the regional market is to be an authorised agent or market participant in its own country. Obviously to effectively participate in the regional market, other conditions established by ERERA have to be met, namely, be registered as regional market participant according to the procedure designed for this end.

For the day ahead market, the market participants will be the TSOs.

4.4. TRANSACTIONS IN THE REGIONAL MARKET

During market Phase 2 the following transactions will be possible in the regional market:

1. PPAs
2. Bilateral agreements between neighbouring countries same as in phase 1
3. Bilateral agreements between two countries with transit through a third country

4. Day ahead market

4.4.1. PPAs

Although it is expected that during market phase 2 there will be much more confidence in the regional market from the part of private investors, so they participate in the regional market with the tools foreseen to trade (bilateral agreements, day ahead market) it is possible that countries still need to "provide confidence" to investors by signing traditional PPAs for generation system expansion.

These traditional PPAs will still be possible provided they meet the conditions established for them in market Phase 1.

There is a special kind of PPAs which is worth mentioning because they can contribute to develop national resources that otherwise would not be possible to exploit. These are the PPAs with a regional optic, that is to say, a PPA which is built in one country but is meant to supply other countries in the region. For these PPAs the same conditions as mentioned before apply; among them, most important are that:

- These PPAs will need to have allocated transmission capacity.
- The PPA has to declare daily (to the SMO) how much of this capacity allocated capacity will be using and even if a transmission line is of its property will have to make available to the market the capacity it does not use.

It is worth underlining that the principle of honouring contracts is maintained; therefore TSOs cannot influence or modify the PPA operation if it is within the PPAs provisions. The only requirement that is being put is that when the PPA does not use the transmission capacity allocated to it, it has to make it available. This may happen because the buyer will not be using the whole capacity at some moment or during maintenance periods or because of an outage of the generator's unit(s), etc.

4.4.2. Bilateral Agreements between Neighbouring Countries

Conditions for these agreements are the same as in market Phase 1, the main differences are:

- now transmission services will not be agreed by the parties but will be subject to the regional regulation of transmission services, and
- it is expected that short (or very short) bilateral agreements are substituted by the day ahead market as more and more transmission capacity is available and as market participants become more confident in the market and "learn" how to operate in the day ahead market.

4.4.3. Bilateral Agreements with Transit through a Third Country

These agreements which involve the transit through a third country's system (or more than one) involve two elements that have to be considered:

1. The allocation of transmission capacity to make possible the transaction
2. The payment for the transmission services

a) Allocation of transmission capacity

Bilateral contracts are allocated in the same manner as market Phase 1 only that in this case it is needed to consider the capacity in the country that hosts the flows.

b) Payment for transmission services

The transmission tariff (one of the conditions precedent to start this market phase) will be applicable to pay for the transmission services and they will not be negotiated anymore.

4.4.4. THE DAY AHEAD MARKET

The day ahead market is a market introduced in phase 2 and it is the most important difference compared to market phase 1.

The day ahead market consists of a centralised pool where participants make ***Offers*** and ***Bids*** for the following day according to a procedure, certain standardised formats of offers and bids and a precise time line specified by the SMO.

Definitions ***Offer*** is a quantity and the price at which the market participant is willing to sell in the day ahead market. The offers (couple of price and quantity) can be presented in growing steps, for example: at price 50 US$/MWh quantity offered is 10 MW, at price 60 US$/MWh quantity offered is 12 MW, at price 100 US$/MWh quantity offered is 15 MW.

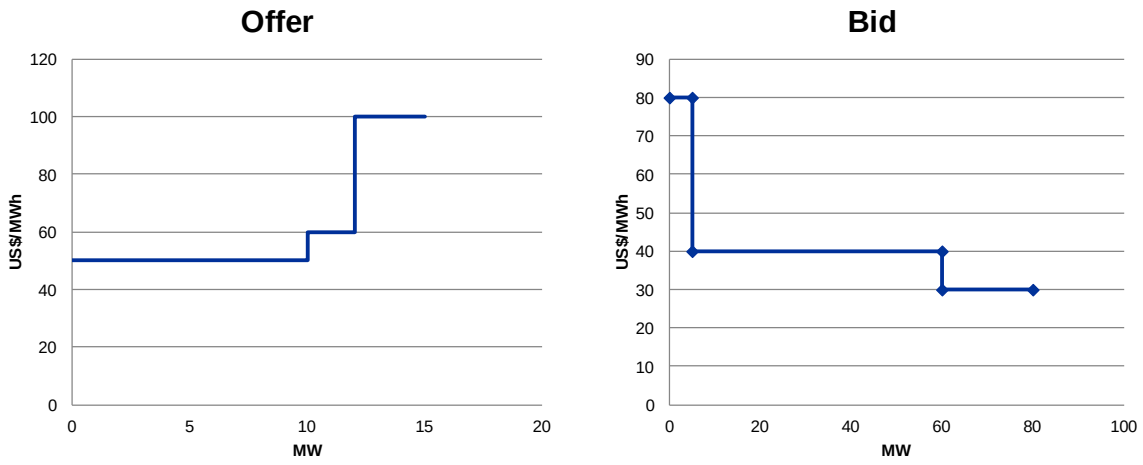
Bid is a quantity and price at which the market participant is willing to buy in the day ahead market. The bids (couple of price and quantity) can be presented in decreasing steps, for example: at price 30 US$/MWh quantity bided is 80 MW, at price 40 US$/MWh quantity bided is 60 MW, at price 80 US$/MWh quantity bided is 5 MW.

a) Offers and bids in the day ahead market

Offers and bids are presented for each trading interval. The trading interval is the minimum period during a trade is carried out, normally 1 hour. In other markets more liquid and dynamic, trading interval can be smaller than an hour but for this case it is considered that one hour is a reasonable period for trading interval.

The next figure shows an example of offers (generator) and bids (demand) for a trading interval

Figure 6: Offers and Bids in the Day Ahead Market



b) Short term bilateral contracts vs centralised dispatch

Market Phase 2 allows bilateral transactions with transit through third countries, this means that theoretically there could be a short term bilateral contract (or opportunity exchange) between two non adjacent countries.

Although from a theoretical point of view both types of transactions (bilateral – centralised dispatch) could achieve the same level of efficiency, in practice, bilateral transactions will have difficulties to be effective because of the lack of short-time information (namely price references) and the volatility of cross-border transmission capacity.

However in a centralized dispatch (day ahead market) based on price offers-bids, short-term prices are revealed sooner, and maximization of regional benefits could be achieved faster. The introduction of the day ahead market in this context brings the possibility of a better use (optimisation) of the transmission capacity, more flexibility and efficiency in the transactions and allows that in the short term some participants are able to profit from surpluses that otherwise they would not. In other words there is a better use of the resources in the short term.

The efficient and fair allocation of the scarce transmission capacity available for bilateral transactions would require a mechanism for congestion management which could be imperfect for this situation. On the other hand, optimal use of the transmission capacity is straightforward in a centralized dispatch for matching offers and bids.

For these reasons our recommendation is to implement short-term transaction mechanisms based on a centralized dispatch of regional offers-bids opportunity (the “day ahead market”). The SMO will be responsible to operate these exchanges in a centralized manner.

The centralized dispatch of offers-bids opportunity will be performed on a day-ahead basis. Transactions selected will be scheduled by the TSO of each country. Total power flows in the cross-border transmission facilities will be the addition of the flows linked to PPA plus bilateral agreements plus those resulting from day ahead accepted (scheduled) transactions. In next point III 4.4.4.d) Scheduling transactions in the day ahead market this process is more detailed.

Only during emergency conditions will national TSOs be allowed to modify the day-ahead flows.

c) “Price vs Cost” based offers and bids

The proposal for the day ahead market considers that transactions will be defined by price based offers and bids, rather than on variable costs. Although the use of variable costs would ensure the achievement of a minimum cost solution, it seems extremely complex to establish the regulatory basis for setting this criterion for offers and bids.

Offers and bids based on variable costs require a regulatory control in order to assure compliance with this criterion. This control is usually based on accounting systems and auditing processes to ensure cost-reflective offers-bids.

International experience shows that this kind of control is very difficult to implement. When plants use oil by-products or some other commodity with an international price, it is possible to design a procedure to estimate “efficient” variable costs.

But for indigenous resources dedicated to a particular plant, for instance coal or gas, it is extremely complex to determine variable costs because:

- in most of the cases the development of the indigenous resource is possible because its economic feasibility is linked to the power plant, thereby it is not possible to use international prices for pricing the fuel;
- most of the costs associated to the fuel production are fixed costs, and it is necessary to introduce arbitrary assumptions for setting and auditing variable costs.

For hydro plants, which are an important resource in the region, it is also not simple to set an opportunity cost for the water. Although there are methods extensively used to set the "water value [5]", these methods require detailed information on fuel costs and an assessment of the value of loss load [6] (VOLL). This last parameter is highly dependent on the particular economical and social characteristics of each country, and its estimation introduces some level of arbitrariness. This means that auditing of the water value is also difficult.

Finally variable costs arise not only from fuel costs, but also from starting-up costs generation units, and O&M expenses. Desegregation between fixed and variable O&M costs also introduces a high level of arbitrariness.

On the other hand, price-based offers and bids used to be effective in markets with high levels of competition, where participants are encouraged to offer-bid their actual variable costs to maximize profits[7]. Although this is not the case for the WAPP during the first stages, the relatively small volume of the cross-border opportunity transactions in relation with internal demands will mitigate the potential raise of price offers to excessive levels. The rule for selection of offers and bids also discourages the offering of excessive prices.

For these reasons it is recommended to use price-based offers-bids for the regional dispatch, rather than variable costs. By using price offers each participant can internalize all its costs, including the criterion used to estimate actual variable costs, and minimum regulatory control is necessary.

d) Scheduling transactions in the day ahead market

The scheduling of transactions in the day ahead market will be made daily, at hourly intervals, following the next steps.

1. SMO estimates the available cross border transmission capacity
2. SMO sets the day ahead cross border interconnection capacity
3. Agents are informed about the cross border interconnection capacity
4. Market participants (in this market - TSOs) send daily offers and bids
5. Opportunity transactions are optimised by SMO
6. SMO informs TSOs of the transactions approved (TSOs decide domestic operation based on approved transactions informed by SMO)
7. SMO collects information about real time flows
8. Settlement

e) "Clearing" the day ahead market

The task of the SMO consists of matching these offers and bids taking into consideration the transmission restrictions; these restrictions refer to transmission capacity available and technical restrictions for a safe operation.

The transmission capacity to consider to "clear" the day ahead market is the transmission capacity available after:

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[5] The water value concept is used extensively to estimate the opportunity cost of the water, as a trade off between using a cubic meter of water to produce energy immediately, or to store it for future generation. Thereby this concept is the equivalent to the fuel cost for offers and bids.

[6] VOLL is the price for the energy that customers would place on not being cut off. Because most customers do not directly respond to real-time prices, there is almost no market information on the value of lost load. This must be determined by indirect means that are highly uncertain.

[7] Theory indicates that in a competitive market the best strategy (the one which maximises his incomes) for a market participant is to offer-bid its variable cost.

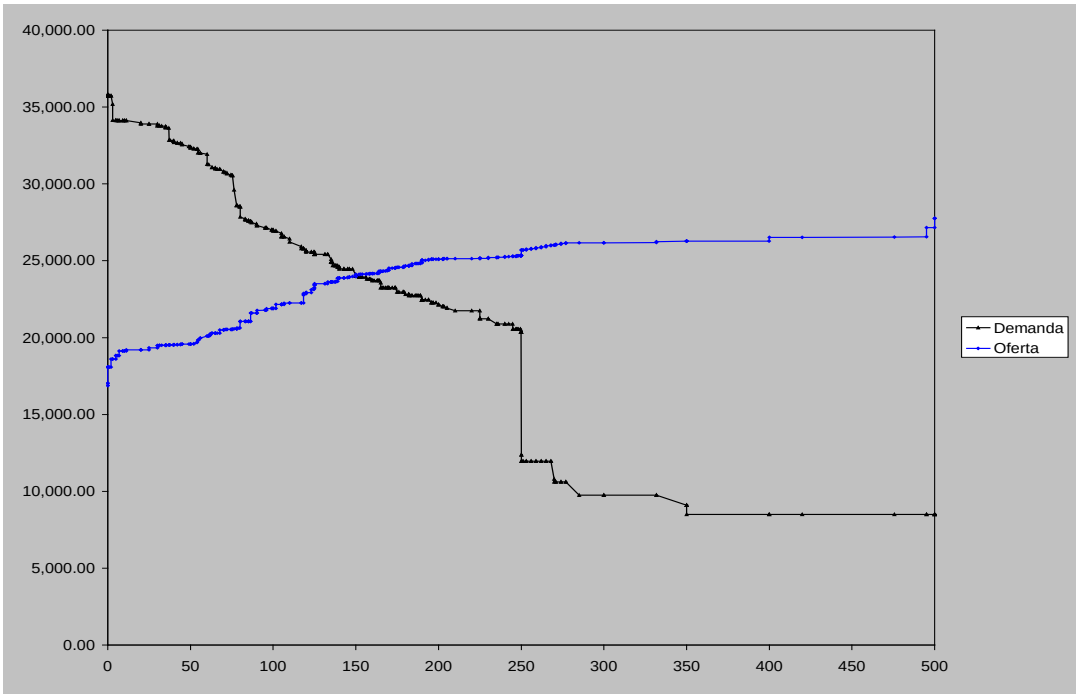
i. Countries have supplied their internal demand
ii. Bilateral contracts have been allocated. That is to say, after all bilateral contracts agreed and approved by the SMO have been allocated their corresponding transmission capacity, then, the remaining transmission capacity is the one that will be used for clearing the day ahead market.

The SMO will then have to "match" offers and bids in the best possible manner taking into consideration the restrictions. This matching is normally carried out with a mathematical algorithm.

From the theoretical point of view, once offers and bids are received, the SMO "builds" the offer and bid curves by adding offers and bids. The result is two curves of the aggregate offer and the aggregate demand. Where the two curves intersect each other it is found the market equilibrium: a quantity and a price; and the price found is the market price. It is said in this case that the market is "cleared" and there is a clearing price or market price.

The following picture shows this procedure. The black curve is the aggregated demand or bids (as price is lower, quantities willing to be bought are bigger), the blue curve is the aggregated offer (as price increases, quantities willing to be sold are bigger)

Figure 7: Clearing the Market



This simplified situation is true in an environment where there are no transmission restrictions. Initially in the WAPP transmission restrictions are expected to happen, even in the second phase, this why the clearing of the market will have to be made with an algorithm that considers specially these transmission restrictions. In this case more than a "market clearing price" what will be obtained is a set of transactions which are possible given the transmission restrictions and "optimal".

4.4.5. THE PROBLEM OF BALANCING

The problem of balancing or settling the differences from agreed quantities in contracts and actual quantities in contracts can be managed through a day ahead market or spot market.

The easiest manner is to settle these differences through the spot market, that is to say, contracts that have "over consumed" (off taker took more than the agreed quantity) "buy" the difference in the spot market at the market price. That is to

say, if an off taker which had a contract of 100 MW took 101 MW then the 1 MW in excess is bought in the spot market at the market price in the trading interval. On the contrary, if the off taker took less than the contract, then it is supposed to have sold in the market at the market price.

The same concept is applied to generators, if a generator injected less than his contract, then the difference is bought in the market at the market price in the trading interval and vice versa if he injected more.

Some cases, in order to foster discipline in bilateral contracts, the differences are penalised. Those who produce more/consume less than the contract receive a price smaller than the market price (for the difference), those who produce less than the contract/consume more than the contract pay a price higher than the market price (for the difference). In other cases a specific "balancing market" is created.

During the market Phase 2 the spot market will still be very weak and limited namely because of the transmission capacity scarcity. A method like this for settling differences requires a liquid spot market which will not be the case for the region during this market phase. For this reason, it is needed that the balancing method used during phase 1 is maintained.

4.5. THE ROLE OF THE SMO DURING PHASE 2

During market Phase 2 the SMO will be an independent regional market operator. Main functions will be same as in market Phase 1 (1 to 12 in list below) with the addition of other functions (13 onwards in the list below):

1. Coordination of scheduling pool interconnectors with domestic TSOs
2. Monitoring load flows and taking action on variances (coordinating responsible of control areas' efforts to maintain flows)
3. Balancing activities.
4. Operational planning of the interconnectors
5. Allocation of transmission capacity to contracts
6. Administration of contracts
7. Dispute Management at an operational level (first instance for solving operational disputes)
8. Meter Read administration
9. Management of settlement, billing, payment processes: for day ahead market, transmission services, market fees.
10. Administration of commercial data bases
11. General administration of the institution (HR, financial administration, etc)
12. Collaboration with other regional institutions (General Secretariat, ERERA)
13. Administration of day ahead market (receive bids and offers, clear the market, set the next day program of cross border transactions, etc)
14. Settlement, billing, payment of day ahead market transactions
15. Market monitoring and surveillance

4.6. THE ROLE FO THE CONTROL AREA

During market Phase 2 the role of the control areas will be the same as during market Phase 1; during this phase 2 flows in interconnectors will be much more dynamic in part because of the day ahead market and therefore it will require more efforts of coordination and communications on real time but essentially the objective (and responsibility) of the control area will not change.

It will be needed to develop new or additional procedures for information exchange because of the day ahead market operation.

4.7. THE ROLE OF THE DOMESTIC TSOS DURING MARKET PHASE 2

During market Phase 2 domestic TSOs will have the same responsibilities as in market Phase 1 and on addition they will be the agents participating in the regional day ahead market.

4.8. THE REGIONAL TRANSMISSION NETWORK

It is expected that for market Phase 2 the regional transmission capacity has been improved substantially compare to the current situation. From the point of view of the issues that have to be considered for market Phase 2 they are essentially the same as in the previous phase, that is to say:

1. Access to the transmission capacity or allocation of the transmission capacity
2. Payment for the transmission services
3. Technical parameters
4. Emergencies

4.8.1. ALLOCATION OF TRANSMISSION CAPACITY

During market Phase 2 transmission capacity will be allocated to bilateral agreements in a first instance, in principle with the same criteria as in market Phase 1.

The remaining regional transmission capacity is used by the day ahead market transactions. Note that the allocation of transmission capacity here is made automatically by the algorithm that determines (and optimises) those transactions which are possible given the availability of transmission capacity.

4.8.2. PAYMENT FOR THE TRANSMISSION SERVICES

Transmission services during market Phase 2 are paid according to the regional transmission tariff and they are no more agreed by the involved parties in the bilateral transactions.

4.8.3. TECHNICAL PARAMETERS

It is expected that for this market phase, objectives in terms of technical parameter have been met, that is to say, WAPP countries have achieved all the upgrades required for a safe and reliable operation of the systems in this regional environment.

However, the maintenance of updated criteria and parameters for operation is a permanent task to ensure systems are operated safely and reliably.

4.8.4. EMERGENCIES

The “Operation Manual for WAPP Interconnected Power System”, in its chapter “Policy 5 Emergency Procedures” provides for the emergency situations. This policy

has to be followed in case of emergencies; on top of these provisions it has to be added that the institution in charge of market operation functions has to be informed at the same moment the ICC is informed of any contingency as well as of all the steps taken to restore normal operation conditions.

Restoration of normal operation conditions has precedence on the accomplishment of any scheduled transaction. Once normal operation conditions have been restored, the institution in charge of market operation functions will assess the impact of the contingency on the commercial transactions.

4.9. PLANNING AND REGIONAL PROJECTS

It has been justified before in this document that it is needed adequate infrastructure in transmission and in generation to have a really competitive market. There are two elements which are important and contribute for the development of infrastructure:

1. The regional master planning activity
2. Fostering and supporting the regional projects (transmission and generation)

4.9.1. THE REGIONAL MASTER PLANNING ACTIVITY

This is an ongoing activity in the WAPP; it was proposed for market Phase 1 that this activity is incorporated as a permanent activity and the responsibility of performing the activity with a fixed periodicity be formally allocated to the Organisation Committee: Strategic Planning Committee. This involves to plan resources for the activity, a calendar and procedures. A “long term regional planning procedure” would be desirable to formalise this activity.

It is expected that during market Phase 2 member States will take into account more closely the regional planning to develop their domestic expansion plans and they will try to coordinate these plans.

4.9.2. REGIONAL PROJECTS

WAPP has good system for the implementation of regional projects; this method does not need to be modified. It is expected that during this period more emphasis is given to generation projects to fast track the development of capacity in the region and approach to a reasonable level of reserve margins which is important in a competitive market to avoid (as far as possible) prices spiking and mitigate the possibility of exercising market power or prices manipulation in the market.

5. MARKET GOVERNANCE

Market Governance is a critical element in establishing the credibility of the electricity market in the perception of both the member states and their internal Electricity Supply Industries as well as with external investors, financial institutions and trading partners.

The governance structure must encourage the disciplines of professional and prudent management, transparency of decision making, operational excellence and strong surveillance and enforcement mechanisms to ensure the fairness and integrity of the market.
All participants should have a voice in the market and no participant should have the authority to impose strategies or decisions that are contrary to the spirit or practice of market operations.

5.1. PROPOSED GENERAL STRUCTURE

The proposed general structure of the market governance takes into consideration the existing institutions and their assignments according to the existing regional framework. However, some modifications will have to be made to allow the allocation of all the tasks that are required for the regional market to work.

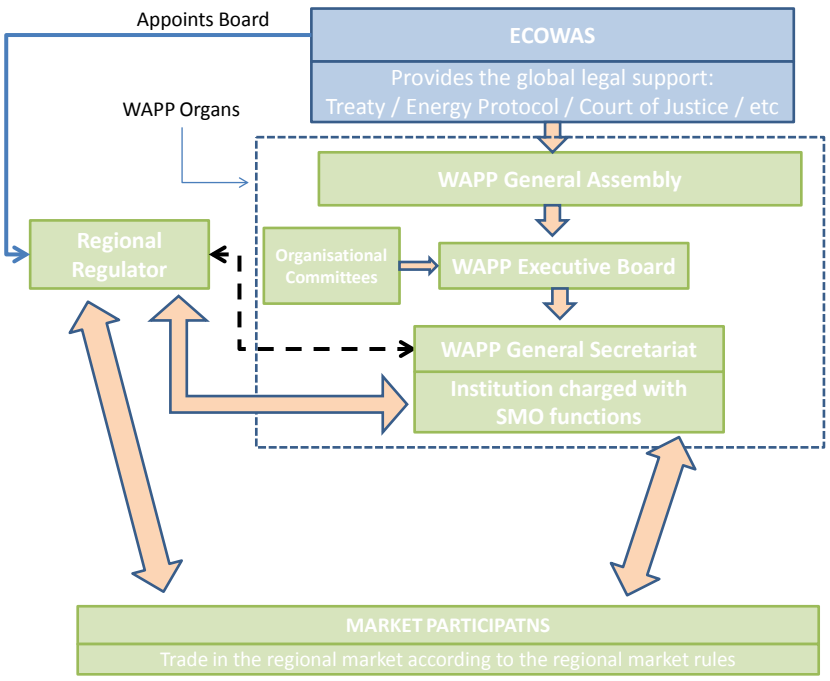
The general framework is different in market Phase 1 from market Phase 2; this difference deals with the institution that performs the system market operation functions during both market phases.

5.1.1. STRUCTURE FOR MARKET PHASE 1

During market Phase 1 an institution, within the WAPP general structure, is appointed to carry out the required system market operation functions.

The following figure depicts the general institutional framework for the regional market for market Phase 1:

Figure 8: General Governance Structure for Market Phase 1



In the figure above broad pink arrows represent a functional relationship between organs, for example the Regional Regulator regulates market

participants and market participants can go to the regulator for solving disputes.

The black dotted arrow represents communications and administrative aspects.

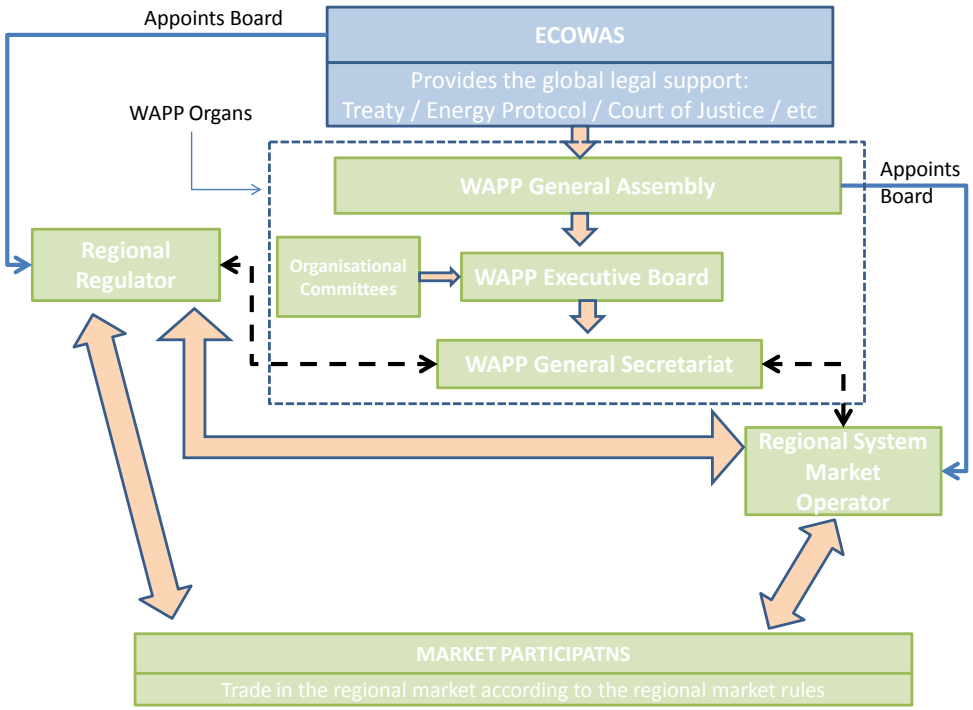
1. ECOWASS provides a solid basis on which the legal, regulatory and institutional framework of WAPP can be developed. There are basic documents such as the ECOWASS Treaty, the Energy Protocol, etc that provide the legal basis and the required authority for the development of the regional market. At the same time, there is a regional Court of Justice where decisions on dispute resolution can be appealed.
2. WAPP General Assembly, WAPP Executive Board and WAPP General Secretariat constitute the backbone of the WAPP organisation, the link with the ECOWAS and where high level (political) decisions regarding the regional market are made. These organisms are already set, have their assignments defined and the procedures for decision making.
3. An independent regional regulator is already legally established, commissioners have been appointed and there is a plan for the development of the different capacities, tools and infrastructure needed by the regulator.
4. During market Phase 1 an institution within the WAPP general framework has to be appointed to carry out the needed system market operation functions.

5.1.2. STRUCTURE FOR MARKET PHASE 2

The key difference in market Phase 2 is that the functions of system market operation which were allocated within the main WAPP structure are spin off and an independent regional system market operator is created.

The following figure shows the general organisation for market Phase 2. The arrows in the figure have the same meaning as in the previous figure.

Figure 9: General Governance Structure for Market Phase 1



5.2. THE WAPP ORGANS

The current WAPP organisation consists of the following main organs: the General Assembly, the WAPP Executive Board, the General Secretariat and Organisational Committees. This organisation will be maintained as well as their tasks; the following points will underline those activities that deal with the operation of the regional market and how they are allocated in the different organisms.

5.2.1. THE GENERAL ASSEMBLY

The General Assembly is the highest decision making body for the WAPP where all members of WAPP are represented. Its main tasks regarding the regional market will be:

- Final decision making regarding all aspects of the regional market implementation, modification and functioning.
- Provide political guidance for the regional market's development.
- Appoint the Regional Market Operator's board members.
- Analyse and approve the reporting of the regional market institutions.

5.2.2. THE EXECUTIVE BOARD

The Executive Board can be described as the operative body that implements decisions and policies agreed at the General Assembly level; the Articles of Agreement of the WAPP Organisation and Functions establish: "*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*".

This capacity applicable in general terms is obviously applicable for the regional power market specific matters and no changes or additions are proposed since its functions are already well defined, applicable for the future developments of the regional market and cover all required aspects.

5.2.3. THE ORGANISATIONAL COMMITTEES

According to the Articles of Agreement of the WAPP Organisation and Functions, "*The Organisational Committees shall 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:

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

According to the previous definition, the Organisational Committees functions are basically advisory functions to the Executive Board.

An important point is that although an activity of regional master planning is carried out in WAPP it is not specifically mentioned that any of the committees would be responsible for this. The General Secretariat does not have either the specific responsibility (at least in written) of carrying out the regional master plan.

The Strategic Planning Committee should be specifically charged with the task of leading the development (and periodical update) of the regional master plan.

5.2.4. THE GENERAL SECRETARIAT

According to the Articles of Agreement of the WAPP Organisation and Functions the General Secretariat carries out its activities pursuant to the authority granted by the Executive Board. It is basically an "operative office" of the WAPP organisation; there are not many specific activities of the GS, except the day-to-day administration of the Information Coordination Center of the WAPP Organization, representation of WAPP before other institutions or organisations and capacity of contracting (in general terms, not specified).

It is worth specifying explicitly the following functions as responsibility of the GS[8]:

- The GS will provide administrative and logistic support to the different Organisational Committees.
- The GS will file all minutes, decisions and any type of documents produced by the Organisational Committees.
- The GS will specifically provide support to the Strategic Planning Committee to ensure a regional master plan is carried out every 5 years and updates of this master plan are made during the 5 years period.
- The GS will develop and host a regional information system oriented to expansion planning and will ensure the dissemination of the information among the member States.
- During the market first phase, the GS will provide day-to-day administration of the Information Coordination Center of the WAPP Organization (ICC).
- During the market first phase the GS will ensure that all preparatory activities needed to create an independent regional market operator are carried out so as to allow commencing of market Phase 2.

5.2.5. THE INFORMATION COORDINATION CENTRE (ICC)

According to the Articles of Agreement of the WAPP Organisation and Functions the Information Coordination Centre (ICC) is "*an organ of the WAPP Secretariat and shall promote operational coordination between Transmission Owning/Operating Members through actual day-to-day information sharing/exchange between WAPP Operational Coordination Centers*".

This clearly sets functions of the ICC as an organisation that promotes operational coordination and transparency and knowledge acquisition of the different systems in the region through sharing and exchanging information. The ICC will carry out these functions by collecting information, organising it in databases and making it available to WAPP members.

The ICC is an institution that can perform the required functions of a SMO during the first stage; however, the ICC does not have capacities of enforcing decisions. It is not even stated the obligation of the utilities to provide the information required by the ICC to carry out its original tasks.

It is necessary then a modification in the capacities and tasks of the ICC for the first market phase if it will develop SMO functions.

Typical functions of the SMO during **first market phase** will be:

[8] It is understood that the functions mentioned do not collide with the current arrangements in WAPP. It is only a matter to make them explicit for clarity in the allocation of responsibilities.

1. Development of “contract templates” for trading. These contract templates have to be proposed by the SMO and approved by the regulator (ERERA).
2. Propose the procedures for approving and registering in the SMO the contracts.
3. Follow up the contract execution.
4. Maintain a contract data base with the key information about contracts. Since contracts are bilateral no price information would be required unless countries agree so but information about parties, quantities, contract duration, etc should be integrated in the data base.
5. Coordinate operational planning with involved control areas and TSOs in contracts. This activity is important to begin organising trade and create “a culture” for operating in a regional environment. This coordination should be carried out for the short, medium and longer term to facilitate later operation in real time and introduce discipline in operation.
6. Coordinate daily with the involved control areas and TSOs the contract execution and safe operation in the region.
7. Generate and maintain an operational data base with the history of contracts execution.
8. Although it is not probable, during market phase 1 there may be need to allocate transmission capacity in interconnectors in case of congestion; in that case SMO will be in charge of this task.
9. During market phase 1 the preparation of the creation of the independent regional SMO will be a central task.

5.3. THE REGIONAL SYSTEM AND MARKET OPERATOR

The objective of the regional System and Market Operator (SMO) is to provide market administration, market surveillance and market monitoring services to the regional power market in an efficient, transparent, non discriminatory manner and according to international best practises and so hereby contribute to the regional market’s sustainable development. Some of these functions will be carried out together with the regional regulator according to the existing framework.

It is important to highlight here that the regional SMO has as main functions those of a typical market operator, but it also performs some functions that are normally carried out by a system operator. These functions are namely:

5. Operational planning of interconnectors
6. Coordination of the use of interconnectors
7. Overview of flows in interconnectors and collaborate with control areas to maintain the scheduled flows
8. Allocation of transmission capacity in interconnectors

However, the regional SMO does not have the power of issuing any order to generators. If any deviation in interconnectors is verified the SMO can only communicate with control areas / TSOs to help coordinate actions to return to the original plan, but it cannot impose any operative decision neither on control areas nor on domestic TSOs.

5.3.1. THE SMO ASSIGNMENTS

These general SMO’s objectives can then be summarised as:

1. Day-to-day management of the different markets
2. Co-ordination with control areas for the use of interconnectors and to optimise this use
3. Settlement of the market including other charges such as fees for services, transmission payments, etc
4. Market monitoring and surveillance

The SMO's specific activities will be:

1. Coordination of scheduling pool interconnectors
2. Monitoring load flows and taking action on variances (coordinating control areas / TSOs efforts to maintain flows)
3. Balancing activities imbalance settlement
4. Operational planning of the interconnectors
5. Congestion management at operational level
6. Market Monitoring and surveillance
7. Administration of contracts
8. Dispute Management at an operational level (first instance for solving operational disputes)
9. Managing the Day Ahead Market (scheduling)
10. Meter Read administration
11. Management of settlement, billing, payment processes
12. Administration of commercial data bases
13. General administration of the institution (HR, financial administration, etc)
14. Collaboration with other regional institutions (General Secretariat, ERERA)

5.3.2. THE SMO DIRECTION

The SMO will be directed by a Board of 5 members which will be proposed by the Executive Board and appointed by the General Assembly.

The Chairman of the Board will be rotative and the period for a Chairman will be of one year.

Board member will be in office for 5 years being possible to re appointed for one more period.

Decisions will be made by simple majority.

The Board will give itself the procedures needed to carry out its assignments.

The Board will decide on the SMO structure which will consist of a CEO and different divisions as deemed necessary to carry out the assignments.

The CEO will participate in the Board's meetings but will not cast a vote.

5.3.3. REPORTING

The SMO will report to the Executive Board through the General Secretariat. A report of activities including market performance, financial statements and operational disputes will be produced annually.

A summarised report on market evolution will be produced every four months.

Any other report on specific issues can be required by the Executive Board or the regulator (ERERA).

5.3.4. INFORMATION AND DATABASES

The SMO will develop and maintain at least the following databases:

1. Database on contracts administration
2. Data base on commercial operations
3. Metering data base
4. Data base on cross border flows

5.4. THE INDEPENDENT REGULATOR

The role of the independent regional regulator will be, as stated in the Articles of Agreement, carried out by ERERA. The current WAPP framework already provides for objectives, responsibilities and assignments of the regional regulator.

6. DISPUTE RESOLUTION

In the current WAPP framework there are two possibilities or at least, from the formal point of view there can be two possibilities for dispute resolution:

a) The Articles of Agreement provide for a method for dispute resolution.

b) The regional regulator (ERERA) is charged, as one of its responsibilities, to solve disputes.

6.1. ARTICLES OF AGREEMENT PROVISIONS

The provisions in the Articles of Agreement, resemble more to a "mediation" process than a full dispute resolution mechanism. Key characteristics to mention are:

1. The procedure is applicable to disputes among any member or institution.
2. The potential parties in disputes are "*encouraged*" to follow this procedure before any other type of litigation but they are not obliged.
3. Disputes which are foreseen to be solved by other method are excluded from this procedure.
4. The administrative involvement of WAPP organisation in the procedure is limited to facilitate the assembly of a dispute resolution panel.
5. Different types of proceedings are foreseen all of them tending to foster an agreement between (among) the parties.
6. The panel's resolution is neither final nor enforceable, so parties may end with a dispute not solved.

As a conclusion it can be said that this procedure does not cover the needs of a market since it is necessary a procedure which ensures an outcome final and enforceable, even if later can be appealed before the same authority or another one.

This procedure can be used as a first step to try to solve the dispute amicably in an organised manner.

6.2. REGULATOR'S DISPUTE RESOLUTION CAPABILITIES

The Regulation C/REG.27/12/07 on the Composition, Organisation Functions and Operation of the ERERA establishes in its Article 16 (point 5) as one of ERERA's mission to "*establish effective dispute resolution procedures . . and control its application*".

Article 17 (Powers of ERERA) reinforces the fact that ERERA has as one of its powers to solve disputes; moreover, the decisions are binding, therefore enforceable. These decisions can be appealed at the ECOWAS Court of Justice.

Finally, ERERA (according to the same regulation) has to develop and make public the proceedings for dispute resolution.

As a conclusion it can be said that the provisions of the Regulation C/REG.27/12/07 on the Composition, Organisation Functions and Operation of the ERERA regarding dispute resolution are sufficient and correct from the point of view of the needs of a regional market.

6.3. ARTICULATION OF METHODS FOR DISPUTE RESOLUTION

From the point of view of a regional market or even a domestic power market it is necessary to have available a clear dispute resolution procedure because it is one of the aspects that encourages the participation in the market. Without a clear and fair dispute resolution procedure it is impossible a liquid market or at least it is very cumbersome. In the case of having a day ahead market it is mandatory this procedure.

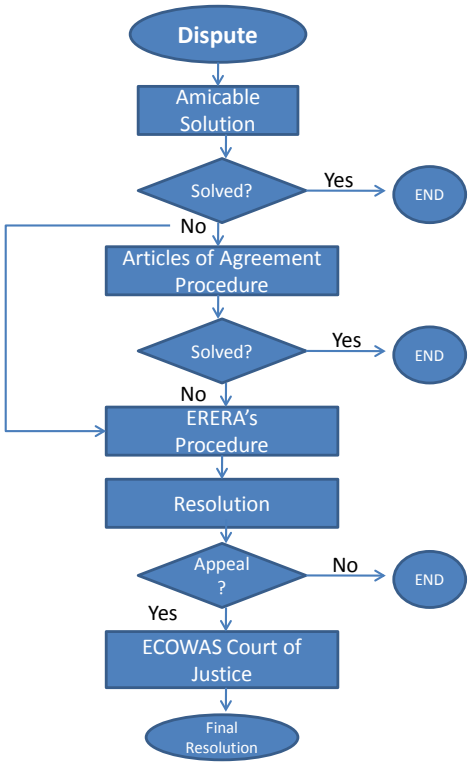
The WAPP organisation has already two formal alternatives for solving disputes and it was already seen that one of them does not cover fully the needs. However both procedures are not conflictive.

Taking advantage of the existing procedures it is proposed that the resolution of disputes in the WAPP regional power market is organised in the following manner:

1. A first stage where disputing parties try to solve amicably the dispute.
2. If they do not arrive to a solution they can proceed according to the provisions established in the Articles of Agreement. This would be a more structured manner to solve disputes amicably. Since the solution of this procedure is neither final nor enforceable, a party may not agree on its outcome.
3. In case a party does not agree on the outcome of the procedure followed according to the Articles of Agreement then it can present its dispute to the ERERA. In this case the previous procedure can be considered as an unsuccessful amicable resolution of the dispute. ERERA will then apply its dispute resolution procedure which if final and binding.
4. Parties can appeal ERERA's decision to the ECOWASS Court of Justice.
5. Parties can try to solve the dispute amicably and if they do not succeed go directly to ERERA. In this case they have to demonstrate face to ERERA that they have already tried an amicable solution.

The following diagram illustrated the process and possibilities.

Figure 10: General Dispute Resolution Procedure in the Regional Market



It is worth mentioning that the SMO's function to solve operational disputes does not collide with this process. If the SMO does not arrive to solve the dispute then it would enter either at the level of "Articles of Agreement Procedure" or directly to ERERA's procedure.

IV ANNEX: MARKET RULES ORGANISATION

The Market Rules are the rules by which the market players participate (and trade) in the regional market. These rules are simply the specification of the market design in a coded manner. All decisions made at the market design level are structured and organised in an operative document: the Market Rules.

Here below we present a draft of the proposed organisation of this document; this content may vary when actually writing the market rules:

1. ***Introduction and Objectives:*** covering issues such as the objectives of the rules, the field of application, the legal support amendments, enforcement, etc.
2. ***Interpretation and Conditions Precedent***: how the rules must be interpreted, how to proceed in unforeseen conditions, the different stages of the market, effectiveness and conditions precedent for the rules to be applied, etc.
3. ***The System Market Operator***: describing the roles and activities of these institutions.
4. ***The Control Areas***: describing the roles and activities of these institutions.
5. ***The National TSOs***: describing the roles and activities of these institutions.
6. ***Participation, Admission, Withdrawal and Termination***: describing who is allowed to participate in the market, the procedures to become a market participant, rights and obligations of market participants, etc.
7. ***Contracts***: which are the types of contracts allowed in the market, how they operate, etc.
8. ***Submission of Scheduling and Dispatch Data and Contract Nomination***: detailing the information to be supplied, the process of scheduling, how contracts are considered, etc.
9. ***Settlement and Payment***: detailing the processes for settlement in the market and the procedure for payments among participants.
10. ***Communications***: detailing how communications must be made in the different cases.
11. ***Governance, Administration and Enforcement***: detailing the different institutions involved in the governance, including procedures for dispute resolution, market surveillance amendments of rules, procedure for modification of the rules, etc.