



DEVELOPMENT OF
ECOWAS REGIONAL
ELECTRICITY MARKET



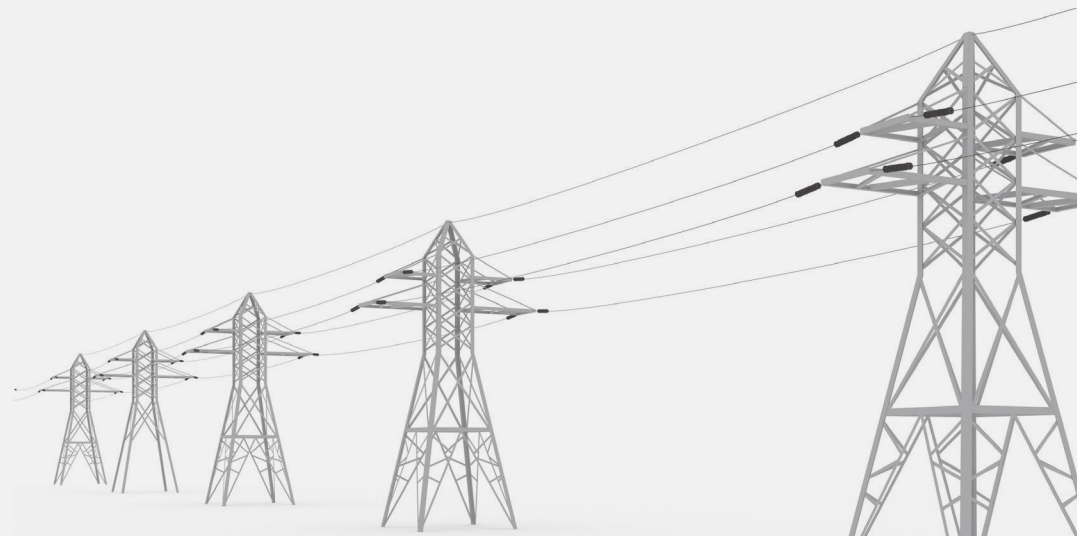
Ensure the promotion and development of power generation and transmission facilities, as well as the coordination of power trade between ECOWAS Member States.



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PROJECT JUSTIFICATION

JUSTIFICATION FOR THE REGIONAL MARKET

I Political Willingness

There is a political decision and instruments for the development of the regional market

Resources are complementary in the region, which suggests strongly the benefits of integration in a regional market (oil and gas in the east mainly and hydro in the west)

I Regional Planning

There are trades already on going in the region which demonstrates the capacity and willingness of countries to trade

There is infrastructure being developed for regional trading

LEGAL FRAMEWORK FOR REGIONAL MARKET

I Economic Cooperation

The ECOWAS Treaty

I Energy Act

The ECOWAS Energy Protocol -*Establish legal framework for securing competitive market*

I Reforms

Unbundling of the large Utilities

Separation of generation / retail from monopoly business (main grid and distribution) in Nigeria, Ghana, Senegal

I Regulation

Supplementary Act A/SA.2/1/08 Establishing the ECOWAS Regional Electricity Regulatory Authority ERERA

I Regional Planning

Articles of Agreement of the West African Power Pool Organisation and Functions (October 2005) (WAPP)

MINIMUM REQUIREMENT FOR THE REGIONAL MARKET

I Technical Requirements

Open access to the spare capacity in the transmission systems

Agreement on a method for payment of wheeling services

Agreement on which assets constitute the regional network and the manner to pay for the use of these assets (transmission tariff)

I Market Governance

Operational Rules

Trading Rules

Regional Regulations



MARKET DESIGN

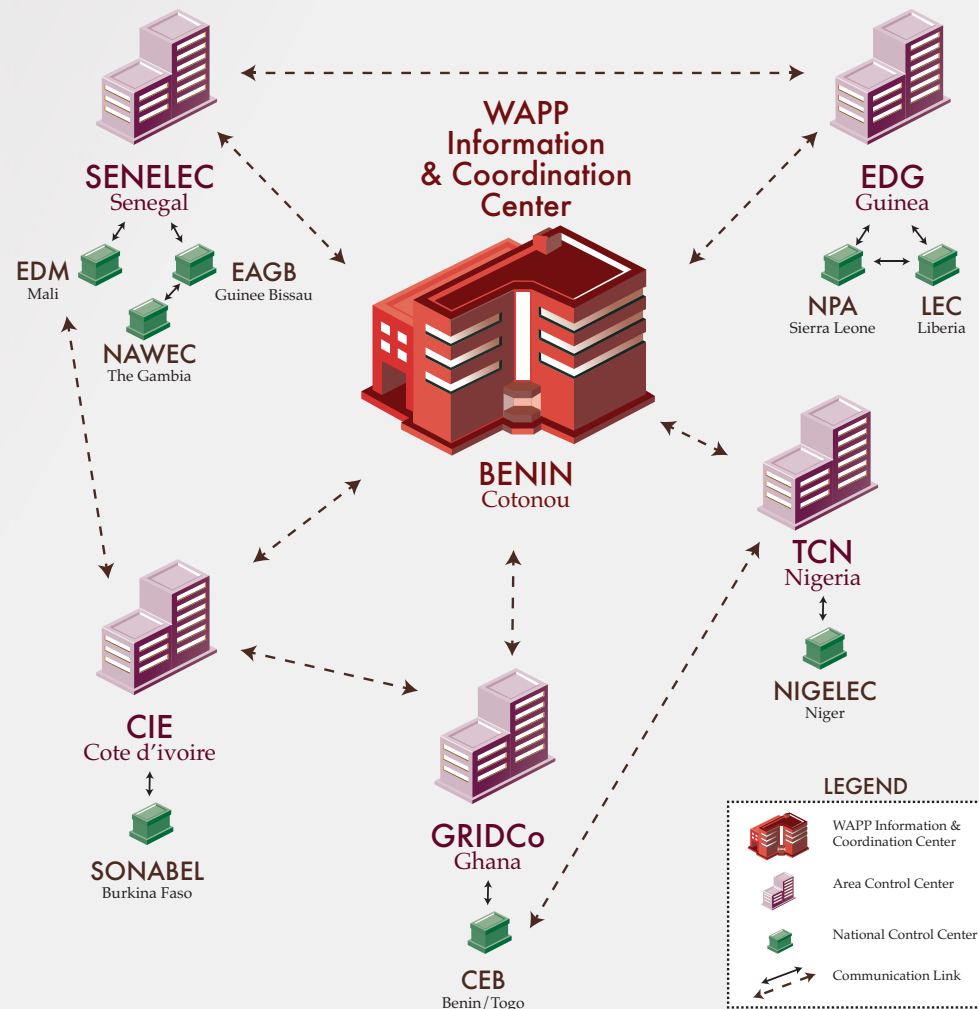
PRINCIPLES FOR MARKET DESIGN

- | Cooperation
- | Gradualism
- | Transparency
- | Non-Discrimination
Competitiveness
- | Environmental
Sustainability
- | Respect National Regulations
- | Facilitate Infrastructure Expansion
(Generation and Transmission)
- | Rules Easy to Understand and
Easy to Implement
- | Access to Transmission Infrastructure
and Converging Standards

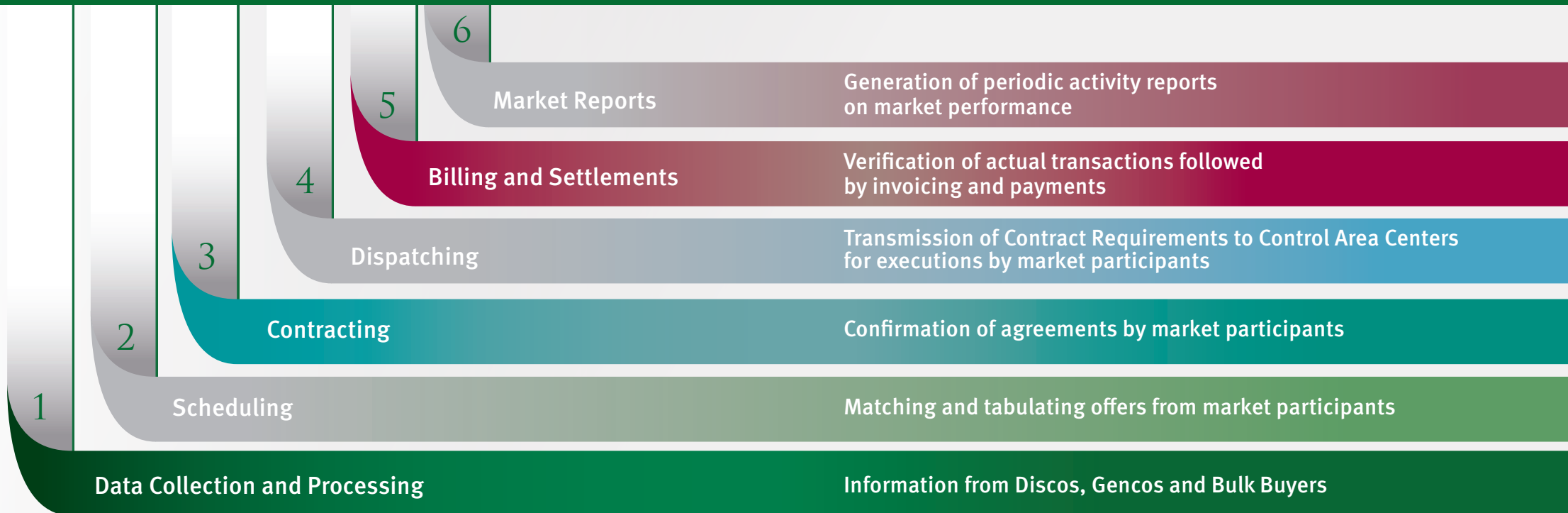
STRUCTURE OF MARKET DESIGN

■ The description of each Market Phase is made in an ordered manner following the next structure

- Market phase general description (introduction)
- Conditions precedent to pass from one Phase to the following
- Market Participants
- Transactions in the market
- The role of the regional Market Operator during the Phase
- The role of the domestic TSOs during the Phase
- The regional transmission network
- Planning and regional projects



FUNCTIONS OF REGIONAL SYSTEM MARKET OPERATOR



MARKET PHASES



I Phase 1

from now and 2015 approximately when most regional transmission interconnection is expected to be commissioned. Main characteristics of this phase would be:

Market operator: appoint an existing institution which will begin developing market operation functions

I Phase 2

Based on the preparations carried out during the first phase, activities will include but not limited to the following:

Short term exchanges through day ahead market (regional optimization model)

Independent Regional (System and) Market Operator

I Phase 3

A long term vision which would include:

A liquid and competitive market in the region.

Possibility of trading different product integrating other markets

Market for some ancillary services, financial products.



MARKET ROAD MAP

PHASES 1 & 2

Aspect	Phase 1	Phase 2
Institutional	<ul style="list-style-type: none"> » ERERA puts in place an operative dispute resolution procedure » Staff (ERERA) capable of solving disputes » Institution charged of regional market operation functions 	<ul style="list-style-type: none"> » Market operator fully established and functioning
Domestic Regulations	<ul style="list-style-type: none"> » Internalise contract templates and contract procedures » Implement plan for adjustment of technical standards » Open access to spare capacity of transmission 	<ul style="list-style-type: none"> » No more modifications are indispensable » It is desirable reforms take place or are initiated to increase number of participants in the market
Trading Rules	<ul style="list-style-type: none"> » Bilateral trading » Standardisation of contracts for trading » Definition of which are the market participants » Role of domestic TSOs 	<ul style="list-style-type: none"> » Day ahead market » Bilateral trading with transit through third countries
Dispute Resolution Procedure	<ul style="list-style-type: none"> » Implemented by ERERA 	<ul style="list-style-type: none"> » No further modifications. Characteristics of disputes will be more sophisticated
Regional Standards	<ul style="list-style-type: none"> » Review Operation Manual » Implement plan to adjust standards 	<ul style="list-style-type: none"> » Countries have achieved a certain minimum in standards which allow operating safely the regional network
Development of infrastructure	<ul style="list-style-type: none"> » Current procedure maintained » Master plan carried out » Countries when planning take into considerations regional MP » MO's infrastructure is put in place (to carry out his tasks) 	<ul style="list-style-type: none"> » Countries develop their master plans taking into consideration the regional master plan more closely than in the previous phase.
Training	<ul style="list-style-type: none"> » A training program is set and implemented » Preparation for next phase 	<ul style="list-style-type: none"> » Training focused on enhancing the capacities developed in all countries' utilities to ensure they are capable of trading efficiently. » Preparation for next phase which is more sophisticated

PREPARATORY ACTIVITIES PHASE 1

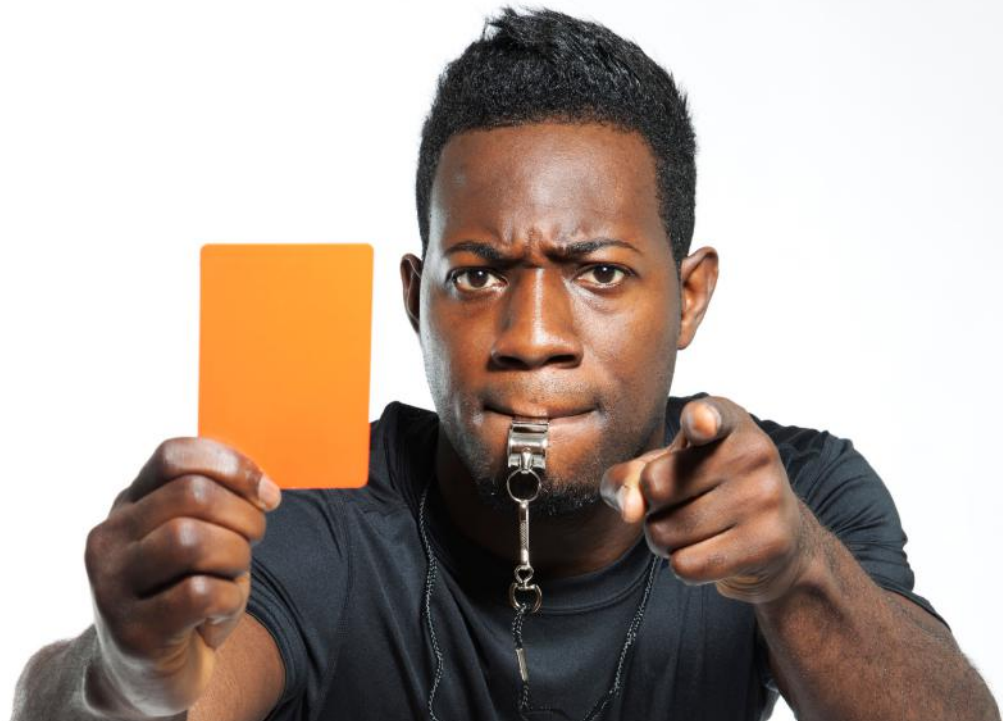
Task Description	Responsible	Comments
Develop and implement a dispute resolution procedure	» EREDA	
Trained professional staff for dispute resolution	» EREDA	
Decision for allocating the market operation functions in an institution	» General Assembly (General Secretariat)	» Functions can be allocated in an existing institution or create a new one. General Secretariat should undertake the responsibility of preparing this decision
Implement decision on allocation of responsibilities of market operation	» General Secretariat	
Establishment of the MO with the needed infrastructure	» General Secretariat	
Development of “contract templates” for trading and the procedures for registering in the MO	» General Secretariat	» The current TA will develop the contract templates. The procedure should be later developed by the MO as part of its initial activities

Task Description	Responsible	Comments
Approval of contracts and procedures regarding contracts	» General Secretariat » MO	» Contracts are part of this TA. Contract procedures are set by the MO
Development and approval of regional market rules	» Executive Board?	» Market rules are developed under this TA but final approval for their enforcement should be made by a WAPP institution
Agreement on a “glide path” to regional standards and operational procedures	» General Secretariat	» The GS should lead a process where countries agree on this point.
Internalisation by the countries of contracts, contracts procedures, regional market rules, regional standards adjustments and operational procedures	» General Secretariat	» The GS should monitor a process where countries carry out these activities.
Development of a training program	» General Secretariat	» This TA will propose an initial training program
Implementation of the training program	» General Secretariat	

PREPARATORY ACTIVITIES PHASE 2

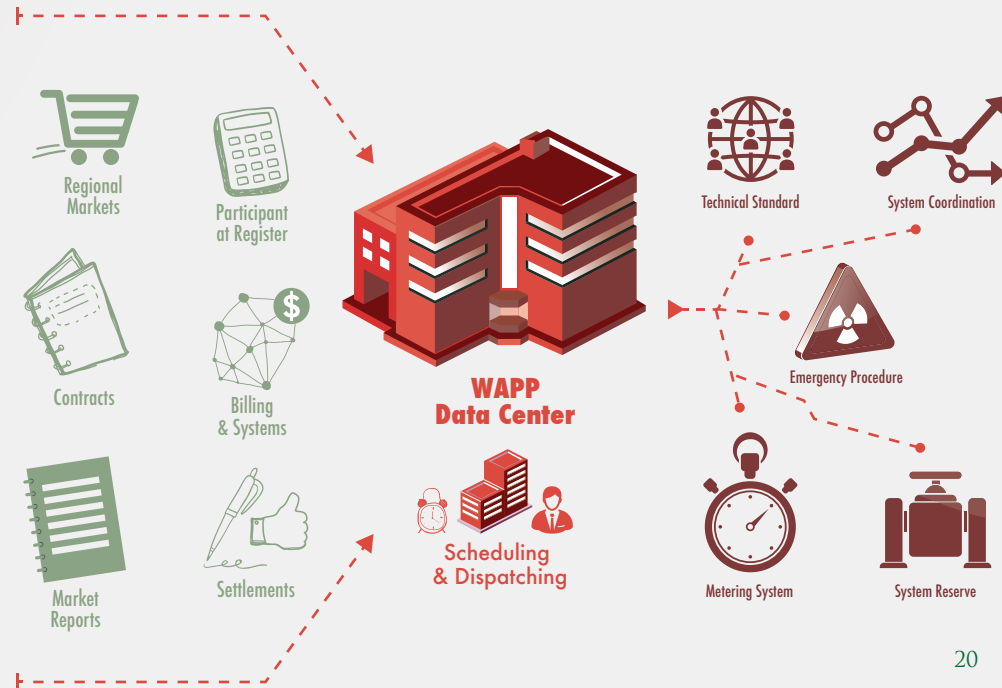
Task Description	Responsible	Comments
Equip MO with the hardware and software necessary for phase 2	» MO	
Countries implement open access in their transmission systems	» ERERA	
Market rules for this stage are reviewed and “fine tuned” if necessary	» ERERA	
The agreed plan for implementation of regional standards continues being implemented	» ERERA	
Methodology for a regional transmission tariff and wheeling services is agreed, put in place and tariffs are actually calculated and enforced	» ERERA	
Agreement on enforceability of regional transmission projects and reinforcement of domestic transmission systems.	» Executive Board (General Secretariat)	» ERERA should take the lead in this task, however the methodology may need a final approval by the Executive Board?
Training	» General Secretariat	» This is an agreement that has to be reached at high level so it is enforceable. The GS would promote this agreement.

Task Description	Responsible	Comments
Agreement on the new markets that will be introduced	» Executive Board (General Secretariat)	» The decision should be approved by the GA but the GS should foster the achievement of consensus
The development of the market rules for the new markets	» ERERA	
The development of the tools for transmission capacity management adapted to the new markets	» ERERA	
Agreement on enforceability of regional master planning (transmission)	» Executive Board	
Transmission tariff and congestion management	» ERERA	



MARKET RULES

REGIONAL SYSTEM MARKET OPERATION



THE MARKET RULES INCLUDES

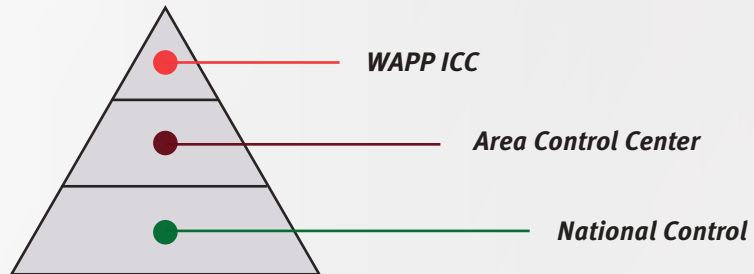
Contains 72 Articles

- » Containing
- » Technical
- » Commercial
- » Financial
- » Settlement
- » Regulation
- » Legal

9 Chapters

- | | |
|----------------|-----------------------------|
| » Chapter I | Introduction and Objectives |
| » Chapter II | General Conditions |
| » Chapter III | The SMO |
| » Chapter IV | The Control Areas |
| » Chapter V | The Domestic TSOs |
| » Chapter VI | Market Phase 1 |
| » Chapter VII | Market Phase 2 |
| » Chapter VIII | Governance |
| » Chapter IX | Miscellaneous |

Operational Hierarchy





MARKET PARTICIPANTS

ROLE OF SMO & DOMESTIC TSOs

Role of SMO

1. Coordination of scheduling pool interconnectors with domestic TSOs
2. Monitoring load flows and taking action on variances (coordinating TSOs 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 resolution at an operational level (first instance for solving operational disputes)
8. Meter Read administration
9. Administration of commercial data bases
10. Recruit personnel for the ICC (HR, financial administration, etc)
11. Collaboration with other regional institutions (General Secretariat, ERERA)
12. The Role of the Domestic TSOs

Role of Domestic TSOs

The WAPP ICC will coordinate with CAC and national TSOs during market Phase 1 to execute these activities:

- » Flows agreed at regional level are maintained in the interconnectors.
- » Technical parameters are maintained in the interconnectors.
- » Domestic system is operated safely to avoid impacts in neighbouring systems.
- » Support in emergencies for neighbouring systems is made available when possible.



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