Development of WAPP GIS Database

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Implementation

Format and structure
- Tables and files
- Map layers and symbology
- Map templates

Data
- Substations and single line diagrams
- Lines and circuits
- Transformers and reactive compensation
- Telecommunication
- Metering
- Power plants and generators

Software
- Software package customization
- Software manual
- Legal issues

Procedures
- Distribution of database information
- Use of database
- Data update
- Exchange of information
- Manuel

Training
- Preparation of presentation
- Training of WAPP experts
- Training of utilities experts

Assistance to GIS management
- Updates reporting
- Map preparation
- Web site development
- Web site management
Data

• The GIS database presently includes the geo-localized data of about 600 substations, 800 transmission lines (totaling 50,000 km and including about 200 double circuit lines) and 200 power plants, either existing, in project or under study.

• HV transmission system only: from 330kV to 60kV

• Technical data to be included/updated on basis of the data collection performed recently for the synchronization study

• Additional Data will be provided through established focal points in member utilities
Format and structure

• Tables and files
• Map layers and symbology
• Map templates
Format and structure

• **Tables and files**

  - Transmission lines: design voltage, operating voltage, cable type and section, circuits (design/installed), length, commissioning date, transmission capacity, series compensation, shunt compensation telecommunication facilities (optic fibre, PLC),....

  - Substations: voltage levels, substation type, transformers characteristics, reactive compensation, short-circuit capacity

  - Power plants: characteristics of each generation unit, including installed and available capacity, fuel type, electrical characteristics including transformers
Format and structure

• Tables and files

• Map layers and symbology

Legend

Lines Voltages
- 330 kV
- 225 kV
- 161 kV
- 150 kV
- 132 kV
- 110 kV
- 90 kV
- 69 - 60 kV

Lines Types
- Existing - 1 circuit
- Existing - 2 circuits
- Existing - 2 circuits, 1 installed
- Future - 1 circuit
- Future - 2 circuits
- Future - 2 circuits, 1 installed
- HV cable

Control Areas
- Côte d'Ivoire
- Ghana
- Guinée
- Nigeria
- Senegal

Power Plants
- Hydro
- Hydro project
- Hydro site
- Thermal
- Thermal - future
- Solar
- Solar - future
- Wind

Substations
- Future
Format and structure

• Tables and files
• Map layers and symbology
• Map templates
Software

• **Software package customization**
  - Updated QGIS software
  - Configuration instructions;
  - Project files
  - GIS database
  - Additional layers (background layers, aerial views, ..)

• **Software manual**
Procedures

• Organization
• Exchanges of information
• Distribution of database information
• Data update
• Use of database
Training

• Training material package
• Training of WAPP experts
• Training of utilities experts
Assistance to GIS management

- Updates and reporting
- Maps preparation
- Preparation and implementation of new developments
- Web site