

ESKOM ENERGIE MANANTALI (EEM)

présenté par

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Outline

- General presentation of Eskom Energie Manantali
 - Profile
 - Mission
- OMVS network
- Functioning of the OMVS Interconnected Network (RIO)
- Congestion Management
- Regulation complexities.

GENERAL PRESENTATION of EEM

- EEM is a subsidiary of Eskom Enterprises which is a member of Eskom Holdings South Africa.
- It is an Independent Operator of the OMVS Interconnected Network (RIO) composed of:
 - the Manantali Interconnected Network (RIMA) with the following features:
 - A hydroelectric power station with an installed capacity of 200 MW;
 - 12 high-tension posts;
 - 1700 km of high-tension lines: 225 kV, 150 kV and 90 kV;
 - An average power generation of 807 GWh /year
 - the national networks of 3 countries: Mali, Mauritania and Senegal

General Presentation of EEM (cont'd)

- **Profile**

EEM was set up in 2001

It is a company established under Malian law that operates on the territory of three countries: Mali, Mauritania and Senegal which are members of the OMVS

(River Senegal Development Organization - OMVS).

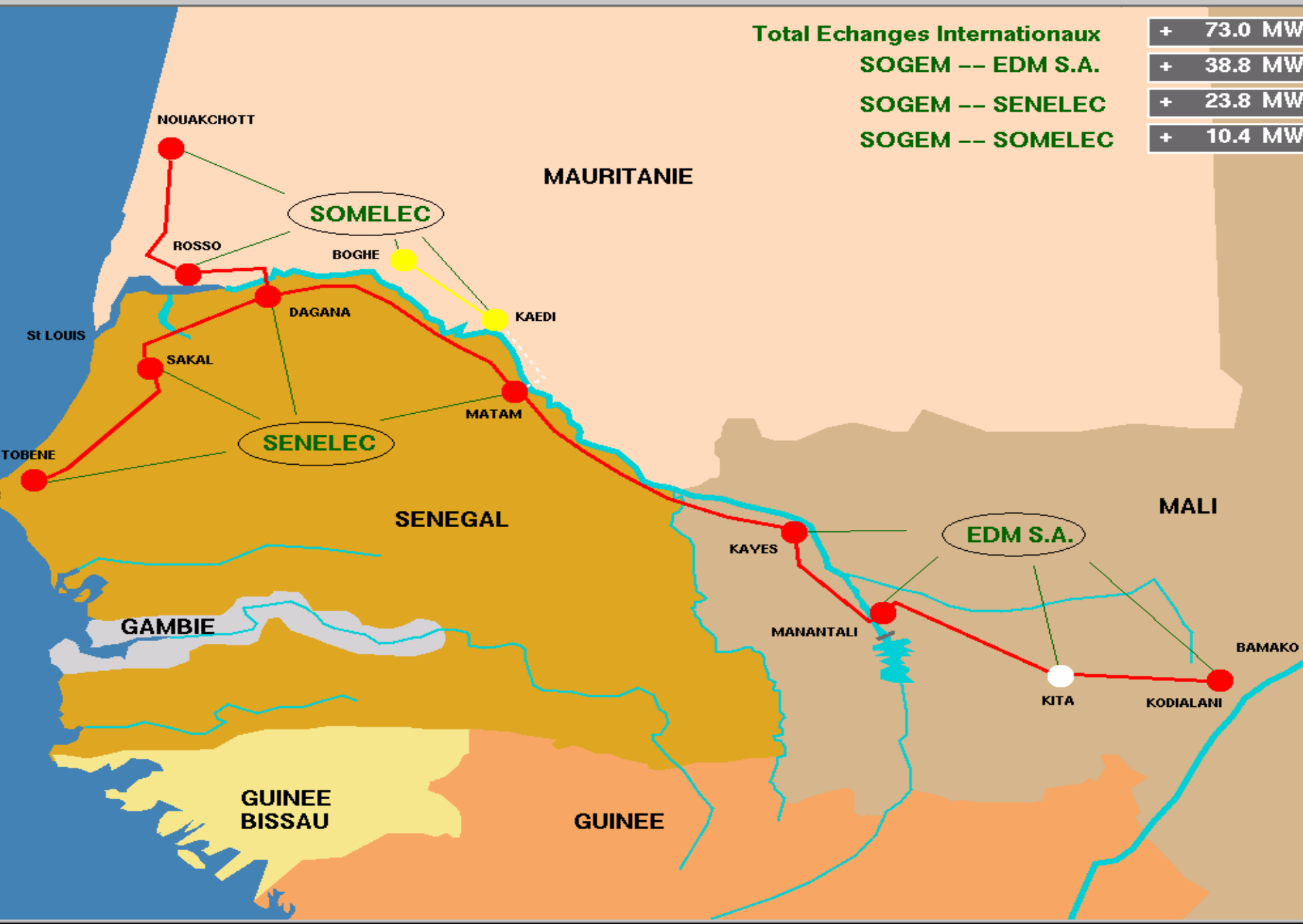
General Presentation of EEM

(cont'd)

- **Mission**
- Operation of the dam and the power generation and transmission facilities of Manantali.
 - An operation and maintenance contract (15 years) for the Manantali Interconnected Network (RIMA), signed between EMM and SOGEM which represents OMVS member States.
- Management of the OMVS interconnected network

OMVS network

- The power generation and transmission facilities of Manantali are jointly owned and shared by the 3 OMVS member States.
- The entire high-tension network of Manantali (RIMA) and the respective national networks of member States constitute the OMVS Interconnected Network (RIO).



Total Echanges Internationaux

- SOGEM -- EDM S.A.**
- SOGEM -- SENELEC**
- SOGEM -- SOMELEC**

+	73.0 MW
+	38.8 MW
+	23.8 MW
+	10.4 MW

Functioning of the OMVS Interconnected Network (RIO)

The Tariff Protocol

- The Tariff Protocol defines the fundamental framework governing the functioning of RIO and guaranteeing the viability of the project during its entire life of 30 years.
- It is binding on OMVS member States, SOGEM and ELECTRICITY UTILITIES COMPANIES (EUCs)
 - The States : are guarantors of the project to ensure sustainability all through project life;
 - SOGEM: undertakes, through the private operator (EEM), to supply electricity to EUCs;
 - The EUCs undertake to consume energy generated by Manantali.

Functioning of the OMVS Interconnected Network: **The Tariff Protocol (cont'd)**

- Makes provision for:
 - The methodology for calculation, indexing and revision of tariffs;
 - Risks and the ways to manage them;
 - The Interconnection Protocol, with its two organs CDI and CTPI , defines the technical framework necessary for more economic and reliable power generation;
 - The typical electric power supply contract between the four parties: the Operator and the three EUCs.

Functioning of RIO (cont'd)

Power supply to electricity utility companies (EUCs)

- The power generated belongs to the States which put it at the disposal of EUCs for management and marketing.
- An agreement between the States defines the sharing of power generated at Manantali among the 3 countries: 52% in Mali, 33% in Senegal and 15 % in Mauritania.
- EEM supplies energy to the States through electricity utilities (EUCs): EDM-sa in Mali, SOMELEC in Mauritania and SENELEC in Senegal.
- The electricity utilities belong to the States, apart from EDM-sa which is privately-owned with the State of Mali as shareholder.

Congestion Management

Constraints:

- Annual power generation limited to an average of 807 GWh
- Power deficit within the OMVS region.
- The dam is filled up only once a year.
- Disparity between the hydrological year (June to May) and the power generation year (January to December).

Challenges

- Compliance with the guidelines for operating the dam
- Satisfaction of demand for the whole year:
 - Demand for energy from EUCs;
 - Demand for water to be used in irrigation, human and animal consumption upstream of the Manantali dam
 - Navigation (later)

Congestion Management (cont'd)

Power Generation Plan

- No bottlenecks in power transmission: congestion will stem from the capacity to continuously supply the power demands of EUCs
- Annual power generation plan.
 - Evaluation of the quantity of power that can be generated in a year;
 - Distribution of the above quantity between the 3 countries as follows: 52 %, 33% and 15 %;
 - The EUCs establish estimates of their energy needs on a weekly basis;
 - Consultation and cooperation between EEM and the EUCs to harmonize dispatching and other needs;
 - The weekly estimates are used to determine the hourly voltage

Congestion Management (suite)

Power Generation Plan

- The hourly voltages are used to draw up the Manantali power generation plan.
 - Dispatching disparities are managed on a weekly basis.
 - Constant dialogue between the Dispatching Center in Manantali and the load dispatching centers of EUCs in real time.
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- Congestion is managed pro-actively through the power generation plan.

Regulation complexities

- The facilities are the joint property of the three States.
- They are constructed on the territory of the three States.
- Each country has its own regulator.
- Customers: EUCs and certain ‘certain’ customers of EUCs.
- EEM is a company established under Malian law but operating in all three countries – therefore, dealing with three Regulators.
- Service matters : EUCs and EEM
- Tariff matters: EUCs and SOGEM
- Customer protection : (States, Regulator)??

END