ELECTRICITY GENERATION EFICENCY

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Company Profile

Albania Power Corporation (KESH sh.a.) is a state owned company established in 1995. Since then KESH has gone through a transformation and reorganization process according to the development of Albania electricity market.

KESH is one of the most important participants in the Albania electricity market, that produces, sells and buys electricity.

Organization of KESH

Actually, KESH sh.a. is organized in two main Divisions, KESH Gen Division and Whole Sale Public Supplier Division.

KESH Gen Division licensed for the production of electricity.

Whole Sale Public Supplier Division licensed to purchase the electricity produced from KESH Gen, SPPs, IPPs and Traders and sells that electricity to the Retail Public Supplier.

KESH Generation System

KESH generation system is entirely based on Hydro Power Plants with a total installed capacity 1450 MW and an average annual production about 4200 GWh.

The most important hydro power plants are Fierza, Komani and Vau Deja in the Drin river Cascade, altogether installed capacity 1350 MW. Other capacity is installed in Mat river cascade (Ulza, Shkopet HPP) and Bistrica river cascade with Bistrica 1 and 2 HPP.

Ulza HPP

Active storage capacity	**124 Mil m3**
Type of turbines	**Francis**
Number of turbines	**4**
Rated head	**54.8 m**
Annual energy production	**120.1 GWh**
Last unit put in operation	**1957**
Output	**25.2 MW**
Max. flow	**16 m3**

Shkopet HPP

Active storage capacity	**89 Mil m3**
Type of turbines	**Kaplan**
Number of turbines	**2**
Rated head	**35.6 m**
Annual energy production	**90.2 GWh**
Last unit put in operation	**1963**
Output	**24 MW**
Max. flow	**40 m3**

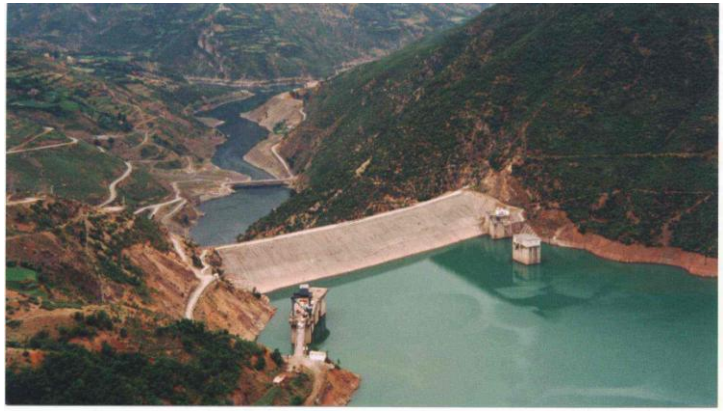
Vau Dejes HPP

Active storage capacity	**319 Mil m3**
Type of turbines	**Francis**
Number of turbines	**5**
Rated head	**52 m**
Annual energy production	**878 GWh**
Last unit put in operation	**1973**
Output	**250 MW**
Max. flow	**113 m3**

Koman HPP

Active storage capacity	**430 Mil m3**
Type of turbines	**Francis**
Number of turbines	**4**
Rated head	**102 m**
Annual energy production	**90.2 GWh**
Last unit put in operation	**1987**
Output	**600 MW**
Max. flow	**146 m3**

Fierza HPP



Active storage capacity	**2.7 Mil m3**
Type of turbines	**Francis**
Number of turbines	**4**
Rated head	**118 m**
Annual energy production	**1.328 GWh**
Last unit put in operation	**1978**
Output	**500 MW**
Max. flow	**123.5 m3**

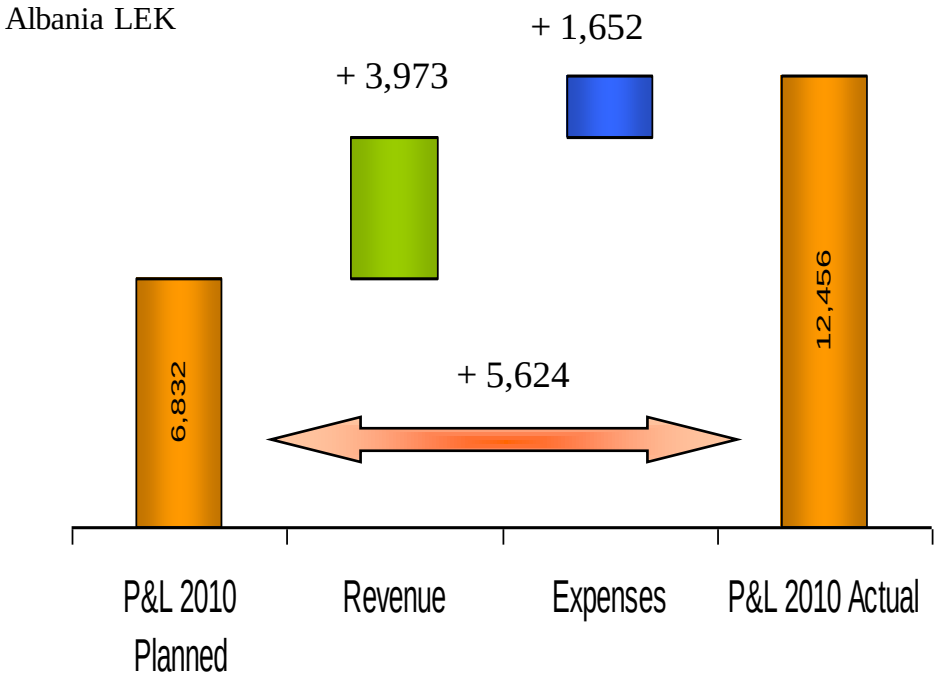
Company Performance

The favorable hydrological situation during 2010 increased the KESH net production to about 5, 300 GWh up to date. Comparing with average annual net production for the same period of about 3, 500 GWh, we have an increase of 1, 800 GWh, or expressed in % of about50 %.

The electricity generated by KESH:

- has covered the full electricity demand of OSSH sh.a. to supply tariff customers,
- has covered the OST sh.a transmission losses,
- has enable the realization of the export of about 2,000 GWh
- has covered an amount of ~ 88.65 GWh for the covering of OSSH sh.a. losses;

Financial Situation



The financial situation of the company, for this period of the year resulted positive, the main effect of this situation is created by the increase of the revenues from the electricity sales with market prices and the reduction of operating expenses compare to the projections at the beginning of the year.

Optimization of KESH Hydro Production

The development of Albania Electricity Market has created the possibility for KESH to optimize its Hydro Production.

The new market structure requires a better collaboration of all market participants, to have a better optimization of KESH production.

The electricity demand of Albania is fulfilled by KESH production, OSSH imports to cover distribution losses, Qualified Supplier's imports to supply the eligible costumers and the generation of Small Hydro Power Plants connected in to the distribution grid .

The realization of import by OSSH and Qualified Suppliers in the due quantity and in the due time will enhance the operation regime of the plants and will create better conditions to manage the hydro reserve and increase the efficiency of electricity production.

Optimization of KESH Hydro Production

KESH hydro based generation enables it to meet OSSH/FPP energy demand for sales to tariff customers and sell electricity in regional market.

The creation of a more flexible legal framework for selling and buying electricity will facilitate KESH integration to the regional electricity market and will create the possibility for the economic optimization of KESH production.

Control and Monitoring Center

KESH is implementing the project to create a new Control and Monitoring Center. This center will monitor and collect in real time the data of the following parameters:

- Actual status of the power plants units .
- Electricity production for each unit.
- Active and reactive power generated and injected in the transmission grid.
- Levels of the Power Plants reservoirs.
- Frequency of the system and of respective units.
- Data for weather forecast in the catchment area.

The evaluation and elaboration of this data will create better possibilities for KESH to optimize and increase the efficiency of Hydro Power Plants.

Projects Implemented by KESH to Increase the Eficiency of Power Generation

The Rehabilitation Project of Hydro Power Plants and the Construction of Vlora Thermal Power Plant.

Objective of the Projects

- Extension of the lifetime of the plants;
- Reduction of unplanned outages of generation units;
- Upgrading of generation units in order to reach modern technical quality standards;
- Provision of sufficient supply for domestic customers;
- Increase in energy production and optimization by implementing a modern Control and Monitoring System;
- Improvement in the security and quality of electricity supply in Albania;
- Improvement and optimization of the utilization of the water recourses in Drin River cascade;
- Combination of Hydro generation with thermal generation creates more possibilities for optimization of production and increases the efficiency of the plants.

Photo of Turbine Rehabilitation Works

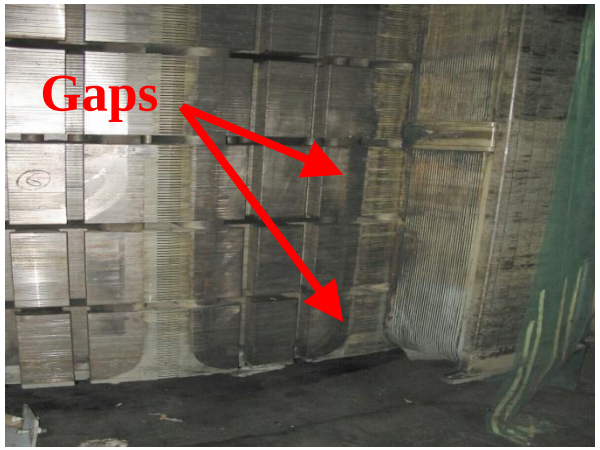
Repair of Turbine Runner

Grinding, NDT tests

Welding

Photo of Generator Rotor Rehabilitation Works

Cleaning



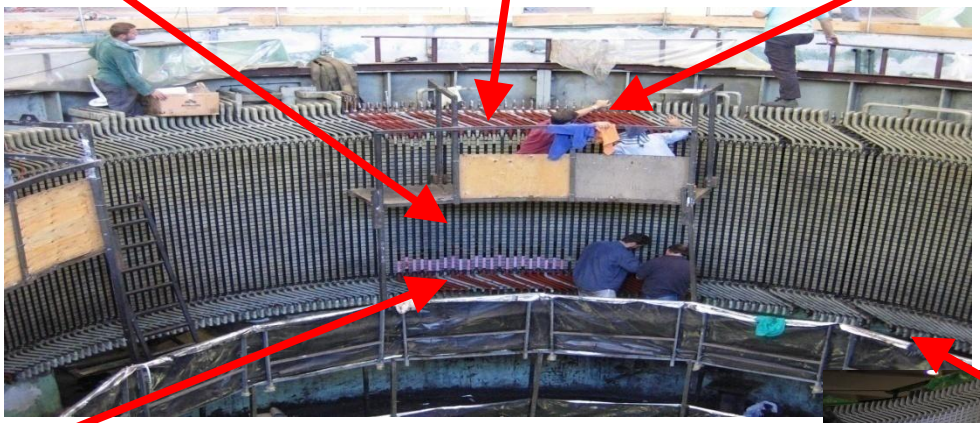
Poles dismantled

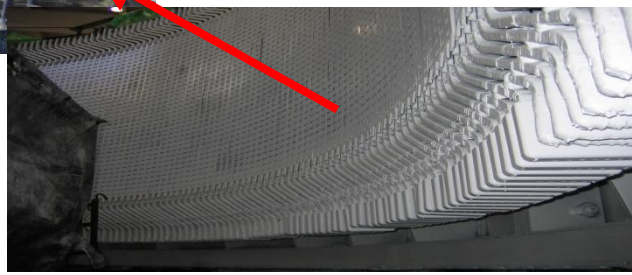
Damper winding

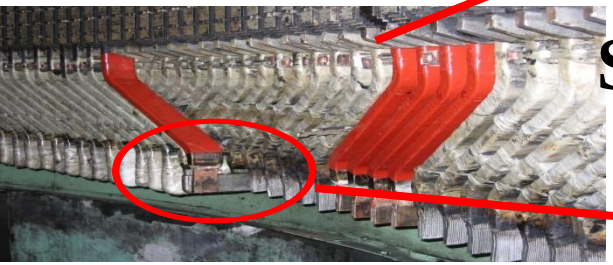
Rotor complete

Photo Stator Rehabilitation Works

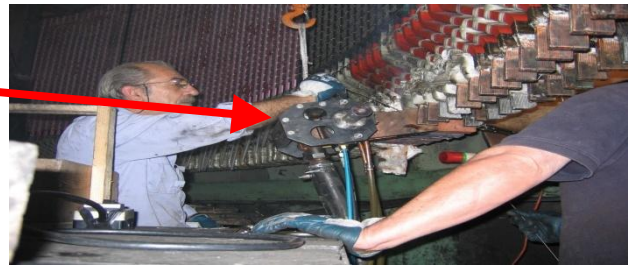
Stator repair & tests







Stator completed



Increase of Effectiveness after Rehabilitation

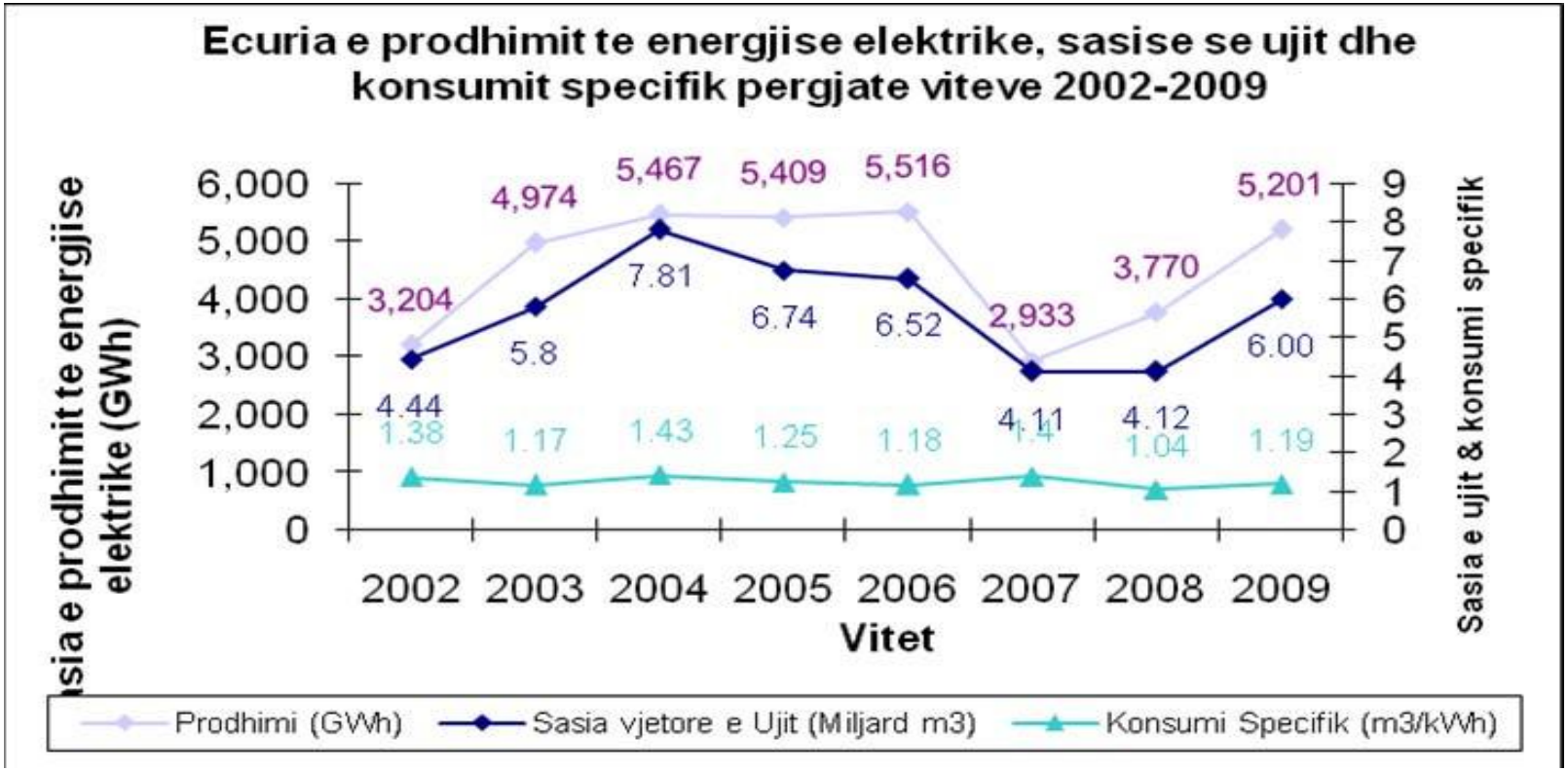
- Extension of lifetime.
- Improvement of reliability.
- Reduction in minimum of unplanned outages.
- Better utilization and optimization of water resources at Fierza reservoir.
- Increase of electricity production, power generation is increased by about 4% per unit,
- Project for Fierza, Komani, Vau Dejes and Bistrica HPPs enhanced the reliability and quality of electric supply throughout the installation of state-of-the-art control and automation technology.

Reduction of Unplaned Outages Hours of Hydro Power Plants

Year	Unplanned Outage Hours			
	Fierza Hydropower Station		Vau i Dejes Hydropower Station	
	Plan (hours)	Actual (hours)	Plan (hours)	Actual (hours)
Appraisal	N/A		N/A	
2005		329		283
2006		172		559
2007		4832		81
2008		44		73
2009		52		44

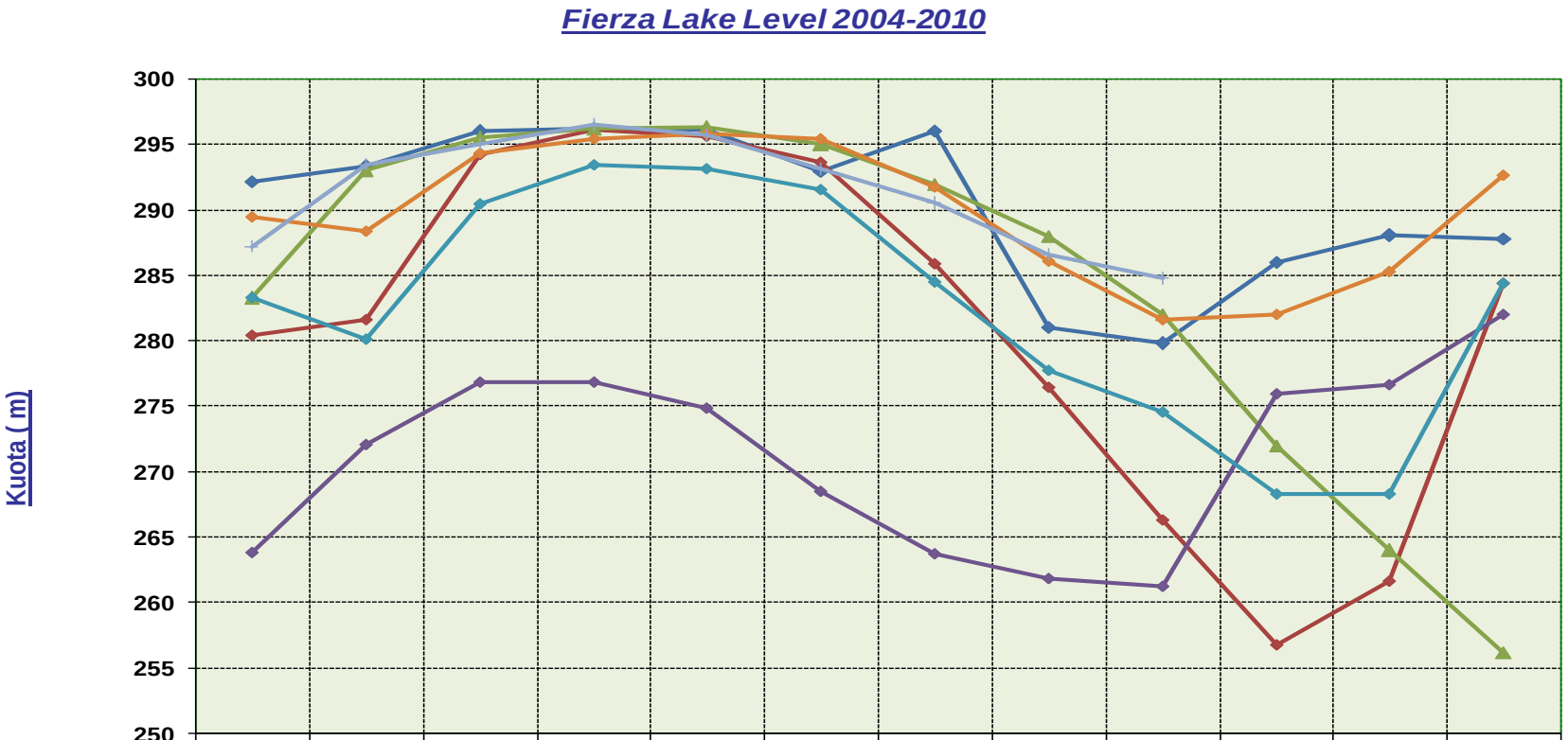
- Reduction of unplanned outages and increase of the Annual Operation time is a big step forward due to the improvement of technical condition of generation units;
- Considerable reduction of forced outages hours has increased the efficiency of production and has had a positive impact for an efficient management of water resources in the Drin River Cascade;
- Availability of the units is also increased.

Eficiency Increase in Electricity Production



As a result of optimization process the water specific consumption for generating one kWh of electricity is decreased steadily year by year.

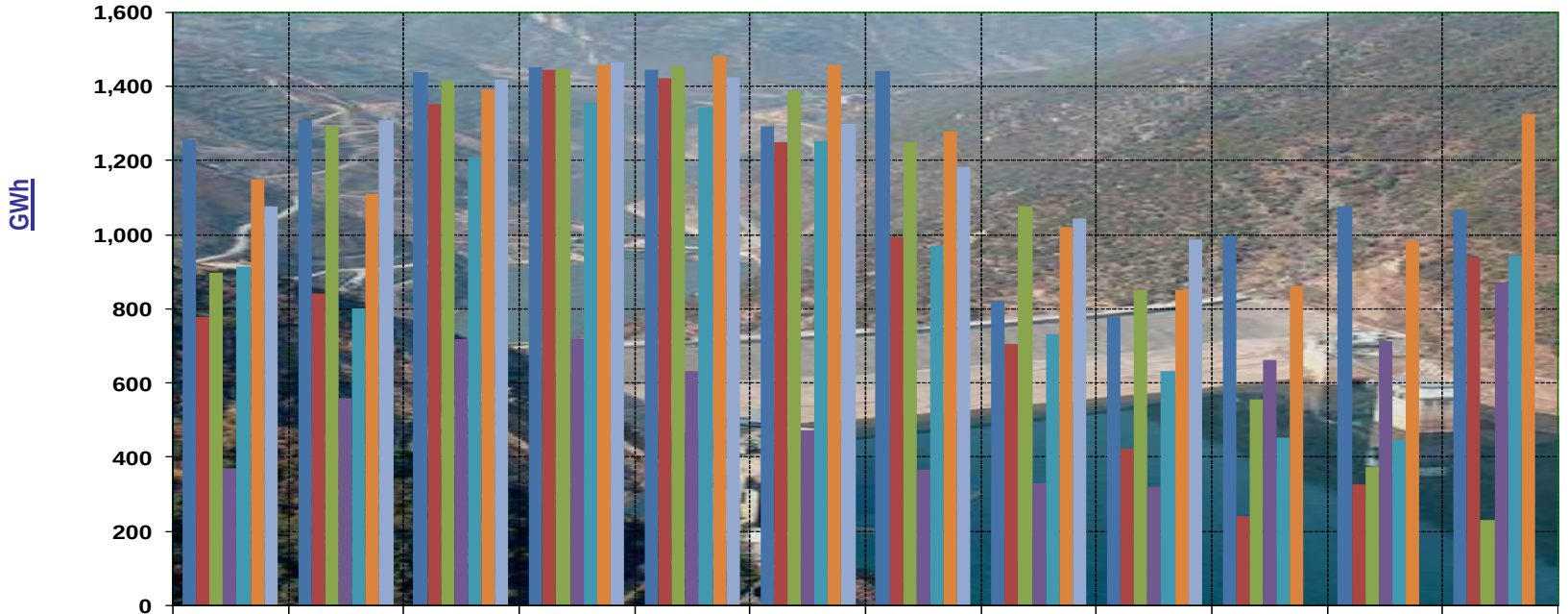
Fierza Lake Level



	1	2	3	4	5	6	7	8	9	10	11	12
Niveli 2004	292.18	293.32	296	296.22	296.12	292.96	296.03	281.07	279.78	286	288.04	287.78
Niveli 2005	280.4	281.66	294.23	296.11	295.62	293.6	285.93	276.4	266.32	256.8	261.68	284.4
Niveli 2006	283.28	293	295.5	296.2	296.3	295	292	288	282	272	264	256.17
Niveli 2007	263.8	272.11	276.87	276.84	274.81	268.54	263.68	261.82	261.22	275.97	276.6	282.05
Niveli 2008	283.28	280.1	290.51	293.48	293.10	291.59	284.52	277.76	274.54	268.28	268.35	284.35
Niveli 2009	289.47	288.4	294.31	295.41	295.85	295.46	291.79	286.10	281.57	282.02	285.29	292.65
Niveli 2010	287.19	293.49	295.06	296.5	295.71	293.12	290.52	286.57	284.75			

Energy Reserve in Fierza

Energetic Reserve in Fierza 2004-2010



	1	2	3	4	5	6	7	8	9	10	11	12
2004	1255.7	1308.55	1439.1	1450.1	1445.11	1291.58	1440.61	821.75	779.715	997.5	1077.79	1067.38
2005	779.782	841.593	1351.84	1444.61	1420.15	1250.18	994.886	706.048	422.867	243.353	329.101	937.875
2006	897.596	1293.4	1414.16	1449.1	1454.09	1389.2	1247.4	1076.2	853	556.5	374.3	233.153
2007	370.344	559.309	720.149	719.249	631.359	472.488	367.956	331.727	320.471	664.05	712.049	870.328
2008	913	802.2	1209.2	1354.9	1342.7	1252	969.1	731	631.1	454.6	446.6	944.5
2009	1148.6	1110.6	1390	1457.1	1479.6	1458.6	1277.4	1021.2	852.7	861.2	982.4	1324.1
Rez.energj 2010	1077.79	1308.55	1419.15	1464.08	1424.64	1299.09	1181.93	1043.86	988			

CONCLUSIONS

In order to enhance the optimization and increase the efficiency of electricity production it is important to:

- Continue the implementation of new concept for optimized operation and maintenance of the plants.
- Implement the dam safety project.
- Ensure a better and optimal hydro management of Drin river and Mat river cascades.
- Create a flexible legal framework for KESH in buying and selling electricity in the domestic and regional markets.
- Facilitate KESH integration to regional electricity market.
- Preserve the reservoirs in optimal levels.
- Coordinate and collaborate more efficiently with other Albanian Electricity Market participants.

THANK YOU