JP Elektroprivreda Hrvatske zajednice Herzeg-Bosne d.d. Mostar, a joint stock company, is one of the three public power utilities in Bosnia and Herzegovina. It was established on November 17, 1992 and since then it has operated in 35 municipalities in the Federation of Bosnia and Herzegovina, providing electricity to approximately 200,000 customers.

The main activities of JP Elektroprivreda Hrvatske zajednice Herzeg-Bosne d.d. Mostar are power generation, distribution, supply, trading, representation and agent services in the domestic electricity market, and imports and exports of electricity.

From establishment of the Company until 2001, the owners of the company were Croat-majority municipalities, while its present majority owner is the BiH Federation Government (90% state capital, the rest joint-stock capital).

JP Elektroprivreda Hrvatske zajednice Herzeg-Bosne d.d. Mostar suffered considerable damage in the war time and raised from the ashes in the early post war years. Today, 20 years later, it is a respectable and successful public company.

The Company has invested hundreds of millions of KM of its own and loan funds in rehabilitation of the power system, reconstruction of the war damaged power plants, reconstruction of the transmission and distribution network, as the priorities of its operation.

Although the HPP Mostar was completely destroyed, and the HPP Rama, HPP Jajce I and HPP Jajce II were damaged in the war of 1992, it did not discourage the Company not only from reconstructing the existing facilities, but also from constructing the new ones such as the HPP Peć Mlini (2004) and HPP Mostarsko Blato (2010). JP Elektroprivreda Hrvatske zajednice Herzeg-Bosne d.d. Mostar is the only power utility in the region which has built new HPPs in its system in the last 30 years.

The Company operates seven hydro power plants that are in a good operating condition, with the installed capacity of 852 MW (HPP Rama, HPP Mostar, PSHPP Čapljina, HPP Jajce I, HPP Jajce II, HPP Peć Mlini and HPP Mostarsko Blato).

The Company’s policy is focused on development and construction of new generation facilities, which is also a part of the strategic plan of the FBiH power sector development. Continuous implementation of development projects, modernization of the overall business operation and adjusting to the open market demands in compliance with international and European standards are among the most important plans for the future.

Since 2004, the Company has intensively worked on the projects of wind energy utilization. Completion of the WF Meslovina project is expected very soon. Construction of new WFs would be a confirmation of the Company’s supremacy in the region in the use of renewable energy sources.

Along with the development policy, special consideration is given to safe and quality supply to all unqualified customers whose number is increasing, with a gross consumption of 1,363 GWh in 2011, including the supply to three qualified customers with a consumption of 1,340 GWh.

In order to meet the electricity demand in the areas of its operation, either for public consumption or for qualified customers, the Company purchases electricity in the market. The quality of electricity supply depends on a reliable distribution network, into which JP HZ HB d.d. Mostar regularly invests. With the continuous growth of the distribution overhead
and underground networks in the last 20 years, this Company operates and maintains 11,668 km long 10, 20 and 0.4 kV grid; 285 km long 35 kV grid; and 3,543 substations with the total installed power of 1,037 MVA.


Until December 31, 2011 the JP Elektroprivreda Hrvatske zajednice Herceg-Bosne d.d. Mostar employed 1880 workers among whom more than 500 employees hold university and college degrees. We keep on systematically awarding scholarships and employing highly qualified employees of different professions and skills according to the need, which is a guarantee for a successful performance and development.

This publication is issued to mark the 20th anniversary of JP Elektroprivreda Hrvatske zajednice Herceg-Bosne d.d. Mostar, outlining only the basic performance data.
This year marks 124 years since electricity was used in BiH for the first time. The first steam power plant and the first steam engine to drive the direct current dynamo, which served for lighting of the head office, were installed in the Zenica brown coal mine in 1886.

Two years later, electric lighting was introduced in BiH, also in Zenica. With construction of the first public TPP (220 kV) in Sarajevo in 1895 a period of commercial use of electric energy in BiH started.

In early years of electrification, in terms of the type of voltage and current in the power plants, DC generators were mainly used and later they were replaced with AC generators.

The largest hydro power plant HPP Elektrobosna was put into operation in Jajce in 1899, and for a long time it was the largest HPP in Bosnia and Herzegovina.

Six bulbs lighted the streets of the town of Jajce in 1905, and in 1912 there were twice as many.


The first kilowatts in Mostar were generated in a 250 kW diesel-electric generating set in 1912. Ten years later (1922) a 2x1.5 MW thermal power plant was put into operation.

There is document from 1888 about electrification in Tuzla (offer from Tt Gaz Budapest). However, Tuzla got electricity in 1906 from the TPP Kreka coal mine.
In the period between the two world wars, it was difficult to implement electrification plans and interesting thing was that individuals appeared as constructors for utility hydropower plants (HPP Ljuta – Konjić 1936, HPP Bugojno 1938), and the Church (HPP Kraljeva Sutjeska 1921, HPP Čajniče 1928 and HPP Široki Brijeg 1935.)

During the Second World War many power facilities were destroyed and out of twelve plants with the installed power over 1000 kVA, only five of them were in operation at the end of the war.

According to the Decree* the company Elektrobih was established on August 30, 1945 but the new plants and transmission lines were constructed with more or less difficulty.

The first 110 kV transmission line Mostar–Gorica was constructed in 1951 but operating under the voltage of 30 kV. By construction of the 110 kV TL Mostar–Gruđe–Kraljevac in 1955, the power systems of BiH and Croatia were connected.

By putting into operation of the 185 km double TL 110 kV HPP Tuaje 1–Resnik, the western and eastern part of the power system of the former Yugoslavia was connected in a synchronous whole on December 22, 1957.

The first 220 kV TL Mostar–Split was constructed in 1957 but in operation under the voltage of 110 kV was until 1965 (when it became a part of the HPP Zakučac).

The first 400 kV TL Mostar–Konjićko, was put into operation in 1976, while the first 400 kV SS was the 400/220/110/35 kV SS Mostar 4 (Čule) that has been in operation since 1977.

In the period 1945 – 1960, the total installed capacity of the power plants in BiH was 449 MW from and it was nine

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* Decree on Establishment of Power Company in Bosnia and Herzegovina, August 30, 1945 (100 Years of Electricity in Bosnia Herzegovina, 1988:15)
HYDRO POWER PLANTS (HPPS IN BIH 1954–1981)

<table>
<thead>
<tr>
<th>Hydro Power Plant</th>
<th>River</th>
<th>Date in operation</th>
<th>Plant type</th>
<th>Turbine</th>
<th>Maximum gross head m</th>
<th>Average annual recharge m³</th>
<th>Average annual energy output GWh</th>
<th>Power factor</th>
<th>Installed capacity MW</th>
<th>Available capacity MW</th>
<th>Power station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trebišnjica 1</td>
<td>Trebišnjica</td>
<td>1968</td>
<td>Adjacent-to-dam-storage</td>
<td>Francis</td>
<td>1100</td>
<td>86.5</td>
<td>81.2</td>
<td>588</td>
<td>9.9</td>
<td>2x34</td>
<td>1x140</td>
</tr>
<tr>
<td>Dubrovnik (100%)</td>
<td>Trebišnjica</td>
<td>1965</td>
<td>Diversion-storage</td>
<td>Francis</td>
<td>9</td>
<td>200.0</td>
<td>93.5</td>
<td>1651</td>
<td>0.9</td>
<td>2x105</td>
<td>210</td>
</tr>
<tr>
<td>Bistrina 1</td>
<td>Trebišnjica</td>
<td>1981</td>
<td>Adjacent-to-dam-storage</td>
<td>Kaplan</td>
<td>21</td>
<td>20.0</td>
<td>93.5</td>
<td>71</td>
<td>0.8</td>
<td>2x105</td>
<td>210</td>
</tr>
<tr>
<td>Čapljina</td>
<td>Trebišnjica</td>
<td>1979</td>
<td>Pumped storage</td>
<td>Francis</td>
<td>5</td>
<td>220.0</td>
<td>28.9</td>
<td>625</td>
<td>0.9</td>
<td>2x25</td>
<td>50</td>
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<td>Rama</td>
<td>Vrbas</td>
<td>1964</td>
<td>Diversion-storage</td>
<td>Francis</td>
<td>464</td>
<td>285.0</td>
<td>32.1</td>
<td>721</td>
<td>0.9</td>
<td>2x80</td>
<td>160</td>
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<tr>
<td>Jablanica</td>
<td>Trebišnjica</td>
<td>1955</td>
<td>Diversion-storage</td>
<td>Francis</td>
<td>288</td>
<td>311.0</td>
<td>111.8</td>
<td>792</td>
<td>0.7</td>
<td>2x24</td>
<td>130</td>
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<tr>
<td>Grabovica</td>
<td>Trebišnjica</td>
<td>1982</td>
<td>Adjacent-to-dam-storage</td>
<td>Kaplan</td>
<td>9</td>
<td>34.0</td>
<td>116.0</td>
<td>342</td>
<td>0.9</td>
<td>2x57</td>
<td>114</td>
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<tr>
<td>Soljakovac</td>
<td>Trebišnjica</td>
<td>1982</td>
<td>Adjacent-to-dam-storage</td>
<td>Kaplan</td>
<td>1</td>
<td>4.3</td>
<td>42.0</td>
<td>1827</td>
<td>0.9</td>
<td>2x21</td>
<td>210</td>
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<tr>
<td>Mostar</td>
<td>Trebišnjica</td>
<td>1987</td>
<td>Adjacent-to-dam-storage</td>
<td>Kaplan</td>
<td>6</td>
<td>24</td>
<td>21.5</td>
<td>194.0</td>
<td>0.8</td>
<td>3x25</td>
<td>75</td>
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<tr>
<td>Jajce I</td>
<td>Pliva</td>
<td>1957</td>
<td>Diversion-run-of-river</td>
<td>Francis</td>
<td>2</td>
<td>98</td>
<td>88.4</td>
<td>40.0</td>
<td>0.8</td>
<td>2x24</td>
<td>50</td>
</tr>
<tr>
<td>Jajce II</td>
<td>Vrbas</td>
<td>1954</td>
<td>Diversion-run-of-river</td>
<td>Francis</td>
<td>2</td>
<td>40</td>
<td>42.5</td>
<td>72.7</td>
<td>0.5</td>
<td>3x10</td>
<td>28</td>
</tr>
<tr>
<td>Jajce III</td>
<td>Vrbas</td>
<td>1981</td>
<td>Adjacent-to-dam-storage</td>
<td>Francis</td>
<td>6</td>
<td>34</td>
<td>52.0</td>
<td>78.4</td>
<td>0.8</td>
<td>2x25</td>
<td>110</td>
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<tr>
<td>Total HPP</td>
<td></td>
<td>1,942</td>
<td></td>
<td></td>
<td>1,143</td>
<td>6,325</td>
<td>1,725</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The times higher than in 1945. During this period, the HPP Jajce II, HPP Jablanica and HPP Jajce I were put into operation. In the period from 1960 – 1980 the HPP Rama, HPP on the Trebišnjica river and PSHPP Čapljina, as the first pumped storage power plant in the former state were constructed.

In the period 1976 – 1987, the gross power consumption (consumption + losses) in the power system of Bosnia and Herzegovina grew at an average annual rate of 7.5%, while power generation grew at an average annual rate of 4.7%.

As a result of such disproportional growth in the consumption and generation, we turned from the surplus electricity period which lasted until 1980 to the shortage electricity period starting from 1981. Therefore, from 1976 to 1980 there were no real power cuts, except in 1976 and 1978 when there were short power cuts mostly for special customers, based on the provisions of mutual agreements.

We end up with a short overview of the history of electricity in our area with the Work Organization Elektro-Herzegovina, headquartered in Mostar, which operated within Elektroprivreda of Bosnia and Herzegovina Sarajevo, the composite Organization of Associated Labour for Power Generation, Transmission and Distribution.
CIRCUMSTANCES OF ESTABLISHMENT OF JP ELEKTROPRIVREDA HZ HB D.D. MOSTAR

By the Decision of the Government of the Croatian Community of Herzeg-Bosnia (National Gazette of the Croatian Community of Herzeg-Bosnia 1992, No.2/ September, page 33/34) the Work Organization Elektro-Herze-govina with its biggest part entered into the newly established company JP Elektroprivreda Hrvatske zajednice Herceg-Bosne, a company for power generation, transmission and distribution.

The company was founded to supply electricity and to establish basic living and working conditions for the citizens and for the economic entities and organizations on the territory of the Croatian Community of Herzeg-Bosnia. Besides the utilities from the Herzegovina area, the company consisted of the utilities from Middle Bosnia and Posavina i.e. the utilities from the municipalities within the Croatian Community of Herzeg-Bosnia. This is about 35 municipalities in which JP Elektroprivreda Hrvatske zajednice Herceg-Bosne d.d. Mostar performs its activities nowadays.

Circumstances of Establishment of JP Elektroprivreda HZ HB D.D. Mostar

Pursuant to Article 18 of the Statutory Decision on the Temporary Organization of Executive Power and Administration on the Territory of the Croatian Community of Herzeg-Bosna, and in accordance with Article 1 of the Decision on Public Companies in the Croatian Community of Herzeg-Bosna, the Croatian Defence Council at its session of 28 August 1992 issues the following

DEcISION on Establishment of the Public Company Elektroprivreda Hrvatske zajednice Herzeg – Bosna in Time of Inevitable Threat of War or State of War

Article 1

It is hereby established a Public Electric Utility Company for power generation, transmission and distribution to enable operation of other companies and organizations on the territory of the Croatian Community Herzeg Bosna (hereinafter referred to as HZ H-B), as well as to meet basic living and working conditions of citizens. The Public Company comprises organizations on the territory of HZ H-B.

Article 2

The Public Electric Utility Company operates under the name: “ELEKTROPRIVREDA” Hrvatske zajednice Herzeg-Bosna, Public Company for power generation, transmission and distribution with full liability. The abbreviated company name is “EPHZ Herzeg Bosna”. The Public Company’s headquarters is in Mostar.

Article 3

The activity of Public Company is: power generation, transmission and distribution. The activity of Public Company is an activity of special interest.

Article 4

The Public Company provides:

- high quality and cost-effective electricity supply to economy and population,
- technical and technological unity in the field of power generation, transmission and distribution,
- electric utility activity development synchronization with the needs of consumers,
- connection of the electric power system of Herzeg Bosna both within the Republic of BiH and outside the Republic,
- harmonization of the electric power system relationships with consumers of electricity by means of general conditions for electricity supply, tariff system and other needs.

Article 5

The funds for establishment of the Public Electric Utility Company are provided by the founder.

Article 6

The assets of Public Company Elektroprivreda HZ H-B consist of resources of electric utility organizations on the territory of HZ H-B.

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Article 7

The Presidency of HZ H-B gives approval to the Public Company Statute. The founder or its body in charge gives also approval to the energy balance, tariff system for electricity sale, general conditions for electricity supply as well appointment and relieving the managing body of duty.

Article 8

The Public Company has a Board of Directors that manages the work of Company and consists of five members who are appointed and relieved of duty by the Croatian Defence Council HZ H-B.

Article 9

The Board of Directors performs especially the following tasks:

- appoints and relieves of duty the General Manager of the Public Company,
- appoints and relieves of duty directors of the Public Company components,
- adopts the annual energy balance with the approval of founder,
- adopts annual plans and work program,
- proposes general conditions for electricity supply and tariff system of sale to the founder,
- performs also other duties to be determined by the Statute and other by-laws of the Public Company.

Article 10

The Board of Directors shall establish the internal organization of the Public Company by a special decision which will have a temporary character based on criteria that enable the highest level of use of material and human resources, the maximum reproducible ability of activity and achievement of special interest in this area.

Article 11

The adoption of the Statute and the constitution of the management body shall be made within 30 days as of the day of enactment of this Decision.

Until the election of the managing body of the Public Company the Acting General Manager will assume the function of that body.

Article 12

This Decision is the basis for registration of the Public Company in the court register.

The Public Company will begin operations immediately.

Article 13

This Decision shall come into effect on the day of its enactment.
All authorities stopped exercising power in the turmoil of war in 1992 and local communities were left on their own. In such circumstances, the Presidency of the Croatian Defence Council issued a Decision establishing the public company Elektroprivreda HZ HB Mostar in the areas under its control.

The Public Company Elektroprivreda Hrvatske zajednice Herceg Bosne Inc. Mostar was registered on November 17, 1992, which is now celebrated as the Day of the Company.

The workers were included in power generation and supply where it was possible. They used to replace their work places with battlefields where they were wounded and lost their lives.

A due respect and appreciation should be given to more than 40 workers who performed their duties and gave their lives in the war. At the end of the war, the power system was completely destroyed.

With the intensive rehabilitation of the power system and reconstruction of the power facilities, the company was growing up and becoming more consolidated. In the summer of 1996, the Public Company Elektroprivreda Hrvatske zajednice Herceg Bosne Inc. Mostar was re-registered as a limited liability company Mostar.

In early 2004, 10% of the company’s state capital was privatized. The status of the company changed to a joint stock company Mostar in March 2004.

One of the activities of JP HZ HB d.d. Mostar was power transmission until March 2006 when a power transmission company was established at the state level. With the funds of the World Bank and the European Investment Bank, JP Elektroprivreda HZ HB d.d. Mostar managed to rehabilitate the transmission grid by 2006. It significantly contributed to synchronization of the European Power System. In addition to reconstruction of the old power facilities, new transmission substations and hundreds of km of the high voltage grid were constructed.

Since its establishment the company had four general managers:
1992 – 1999 Mate Jurković
1999 – 2003 Matan Žarić
2003 – 2008 Vlado Marić
2008 – 2011 Matan Žarić
2011 – Nikola Krešić
**VISION**
JP Elektroprivreda HZ HB d.d. Mostar wishes to become the main driving force of economic development in the areas of its operation and an active participant in the overall development of Bosnia and Herzegovina. All of the development programs should enable the development of other activities for the benefit of all citizens of Bosnia and Herzegovina primarily for our benefit through the power system development.

**MISSION**
The mission of JP Elektroprivreda HZ HB d.d. Mostar is quality, reliable and secure power generation, distribution and supply, and development of new power facilities according to the development needs of users in line with the development plans of Bosnia and Herzegovina.

**STRATEGY**
The top-priority medium-term objective of JP Elektroprivreda HZ HB d.d. Mostar is finding a solution for balancing power generation and increasing electricity demands primarily by construction of renewable sources taking into consideration the principles of sustainability and decrease in electricity imports. This objective will be accompanied by establishing the system of management of quality, environment and business risks in the existing processes and investment projects.

**KEY STRATEGY OF BUSINESS POLICY**
- Ensuring the missing quantity of electricity
- Development of the distribution grid and supply
- Expansion of the business operation
- Increasing the competitiveness in BiH and South East Europe electricity markets
- Reducing the power losses
- Increasing the collection rate
- Reliable and quality supply to customers
- Control of operating costs
- Quality management of resources
- Conclusion of flexible contracts for purchase and sale of electricity
- Restructuring in accordance with the Action Plan for Restructuring of Power Sector in FBiH.

**ENVIRONMENTAL PROTECTION POLICY**
JP Elektroprivreda Hrvatske zajednice Hrvatske Bosne d.d. Mostar carries out all activities according to the principles of sustainable development including responsible management, profitability, satisfaction of all interested parties and dynamic development that does not jeopardize environment. The Company’s objective is achieving better results in environmental protection and it will take all available measures that will improve environmental protection and it will take all available measures that will improve environmental protection in all organizational parts and activities. We will continuously monitor the impacts of our actions on environment and review methods to reduce harmful impacts of these actions.

The environmental protection policy is based on principles of preventive actions and caution. These principles are as follows:
- Compliance with legal provisions, standards and EU directives in the field of environmental protection,
- Responsible behavior towards environment through efficient implementation of the environmental protection policy according to the principles of sustainable development,
- Development of consciousness of responsible behavior of all employees to environment,
- Application of the best available technologies (clean, environment friendly technologies and materials),
- Optimum or responsible and rational utilization of natural resources,
- Priority and intensive use of renewable energy sources,
- Permanent reduction, control and monitoring of emissions to air, water and soil, noise reduction and preservation of biodiversity,
- Continuous assessment of risk and possible impact on environment, prevention and possible repair of the damage to protect the population and endangered environment,
- Inclusion of environmental protection requirements in development plans and projects and inclusion of
environmental protection criteria in decision making processes,
• Mitigation of harmfulness and decrease in quantity of the produced waste, and proper waste management through its disposal and reuse,
• Reduction of energy losses in generation and the distribution network and promotion of energy efficiency with its customers,
• Informing the public about the environmental protection status in the Company through mass media and preparation of annual reports.

In accordance with the promoted principles of the environmental protection policy, employees will be educated and trained through the environmental protection program and encourage them to work in an ecologically responsible manner. The existing system of environmental protection monitoring shall be maintained and improved, and clear objectives of environmental protection management shall be set. Communication with NGO’s taking care of environment and other interested parties shall be provided through informing and public consultations about individual projects. Suppliers, consulting and designing firms, and other cooperating firms shall implement an appropriate environmental protection policy.

ENVIRONMENTAL PROTECTION ACTIVITIES

JP Elektroprivreda HZHB d.d. Mostar has been continuously implementing environmental protection measures through its all activities, especially regarding the water protection:
• By introduction of the hydrological system of automated measurement stations through the development projects with preparation of the Environmental Impact Study related to protection of water quality and quantity;
• By obtaining environmental permits for newly constructed facilities and obtaining environmental permits for the facilities that were put into operation before the Law on Environmental Protection became effective;
• By regular stocking of the reservoirs, Employees are regularly educated and trained for preparation and introduction of the environmental protection system.

Electronic and electric waste is disposed by the selected certified firm in accordance with the Waste Management Procedure adopted by the Management Board of JP Elektroprivreda HZHB d.d. Mostar. We also started activities on preparation of a Project Plan for Construction of Temporary Dangerous and Undangerous Waste Disposal Facilities.

The stock capital consists of 10% private capital and 90% state capital. The Company stock capital amounts to BAM 736,166,000 and is divided into 7,361,660 ordinary shares. The nominal value of a share is BAM 100.00.

HOME TRADE ACTIVITIES OF THE COMPANY ARE:
• power generation, distribution and supply, trading, representing and in the domestic electricity market, manufacture of distribution control equipment, manufacture of other electrical equipment, generation of hydro, thermal and other power, power transmission, sale and distribution, construction and maintenance of civil engineering and building construction facilities and their parts, construction and maintenance of hydro power plants, electrical installation and other installation work, agency services in specific products trade, wholesale of machines for industry and other business activities.

FOREIGN TRADE ACTIVITIES OF THE COMPANY ARE:
• Imports of electricity and goods, and providing services included in the registered activities
• Exports of electricity and goods, and providing services included in the registered activities

LEGAL DATA

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The Company stock capital amounts to BAM 736,166,000 and is divided into 7,361,660 ordinary shares.
The nominal value of a share is BAM 100.00.

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FOREIGN TRADE ACTIVITIES OF THE COMPANY ARE:
• Imports of electricity and goods, and providing services included in the registered activities
• Exports of electricity and goods, and providing services included in the registered activities
• Agency services and representing in goods and services trade
• Imports of spare parts, raw materials and equipment for carrying out of activities

STRUCTURE OF COMPANY SHAREHOLDERS

In 2002, the public subscription for shares in the second round was carried out and the 10% total capital amounting to BAM 73,616,600 was sold.
The largest share among legal entities is owned by the FBiH Government (6,626,306 shares or 90%) and the rest (10%) is owned by investment funds, banks, and other legal entities and physical persons – residents and non-residents.

STOCK TRADE – SASE

On September 15, 2004 JP Elektroprivreda Hrvatske zajednice Herceg-Bosne d.d. Mostar was included in SASE (Sarajevo Stock Exchange) under the issuer symbol JPEMR. At the beginning of 2007, JPEMR was included in the HMTS trading plan, i.e. continuous trading plan only for shares with a certain level of liquidity, frequency and intensity of trading in the stock exchange. JPEMR was included in the SAX -10 i.e. in the group of 10 issuers with the highest value of the market capitalization.
SHARES IN RELATED LEGAL ENTITIES
JP “Elektroprivreda Hrvatske zajednice Herceg Bosne d.d. Mostar has a share in the stock capital of the company “Konstruktor-Neretva” d.o.o. Čapljina amounting to BAM 859,665. During 2006, the stock capital of this company was increased by investment of the member Konstruktor-inženjering d.d. Split. This resulted in the decrease of our Company share to 14%.

In the stock capital of the company Elektrokontrol HZ H B d.o.o. Čapljina amounting to BAM 432,500.00, JP “Elektroprivreda Hrvatske zajednice Herceg Bosne d.d. Mostar has a share of BAM 247,139 or 57.14%.

SHARE VALUES 2004 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Year at the beginning of the year (BAM average exchange rate)</th>
<th>Year at the end of the year (BAM average exchange rate)</th>
<th>Maximum value during the year (BAM average exchange rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>25.00</td>
<td>27.50</td>
<td>50.00</td>
</tr>
<tr>
<td>2005</td>
<td>61.00</td>
<td>55.00</td>
<td>88.02</td>
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<tr>
<td>2006</td>
<td>154.10</td>
<td>147.74</td>
<td>162.04</td>
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<tr>
<td>2007</td>
<td>154.10</td>
<td>177.38</td>
<td>299.84</td>
</tr>
<tr>
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<td>2010</td>
<td>55.00</td>
<td>54.00</td>
<td>72.51</td>
</tr>
<tr>
<td>2011</td>
<td>59.00</td>
<td>48.00</td>
<td>72.51</td>
</tr>
</tbody>
</table>

GOVERNING BODIES

SHAREHOLDERS’ ASSEMBLY
The Shareholders’ Assembly is composed of shareholders. It decides on matters determined by the Law and Articles of Association. Meetings of the Shareholders’ Assembly are convened once a year at least for reporting on the Company Business Report that includes the financial statements and reports of the Independent Auditor, Supervisory Board and Audit Board.

SUPERVISORY BOARD
The Supervisory Board consists of the chairman and 6 members appointed and revoked by the Shareholders’ Assembly pursuant to the Law. It supervises the business affairs of the Company and decides on other matters determined by the Law and Articles of Association. The meetings of the Supervisory Board are held as circumstances require but once in three months at least.

AUDIT BOARD
The Audit Board consists of three members including the chairman. Obligations and responsibilities of the Board are determined by the Law and Articles of Association.

MANAGEMENT BOARD
The Management Board consists of the General Manager and Executive Directors. It manages the business affairs of the Company, represents and acts for the Company and is responsible for regularity of operations in accordance with valid regulations and acts.
HEAD OFFICE
The Head Office is located in the headquarters of the Company. It supports and assists in the organization of the work and business management, represents the Company by the Management Board, performs activities for the Company in general and for the organizational units, and manages and coordinates business operations performed in the organizational units.

ECONOMIC AFFAIRS DIVISION
The Economic Affairs Division is organized and coordinated by the Executive Director. It is divided into four departments: Accounting and Controlling Department, Financial Affairs Department, Procurement Department and Project Implementation Unit – PIU.

LEGAL DIVISION
The Legal Division is organized and coordinated by the Executive Director. The work within its scope is carried out through the Executive Director’s Office, Property-Rights Department, Personnel and General Affairs Department, Public Relations Department, and Safety at Work Department.

DEVELOPMENT DIVISION
The Development Division is organized and coordinated by the Executive Director. The work within its scope is carried out through the Executive Director’s Office and Standards and Environmental Protection Department which consists of the Standard Unit and Environmental Protection Unit.

POWER GENERATION DIVISION
The Power Generation Division carries out the activities of preparation, planning, and integration of power generation, regular and investment maintenance, research, revitalization of the existing plants, pre-construction and construction of new plants and other activities.

All power is generated in 7 hydro power plants with the total installed capacity of 852 MW and possible annual output of 2,277 GWh.

### TECHNICAL CHARACTERISTICS OF GENERATING FACILITIES

<table>
<thead>
<tr>
<th>HPP</th>
<th>Put into operation</th>
<th>Capacity</th>
<th>Utilizable reservoir volume (hm³)</th>
<th>Type</th>
<th>Average annual energy output (GWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rama</td>
<td>1968</td>
<td>2x80 160</td>
<td>466</td>
<td>DA</td>
<td>710</td>
</tr>
<tr>
<td>Čapljina</td>
<td>1979</td>
<td>2x210 440</td>
<td>6.5</td>
<td>CHE</td>
<td>600</td>
</tr>
<tr>
<td>Mostar</td>
<td>1987</td>
<td>3x24 72</td>
<td>6.6</td>
<td>PA</td>
<td>310</td>
</tr>
<tr>
<td>Jajce 1</td>
<td>1957</td>
<td>3x10 30</td>
<td>3.2</td>
<td>DP</td>
<td>231</td>
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<tr>
<td>Jajce 2</td>
<td>1994</td>
<td>3x10 30</td>
<td>1.3</td>
<td>DP</td>
<td>175</td>
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<tr>
<td>Peć Mlini</td>
<td>2004</td>
<td>2x15 30</td>
<td>0.8</td>
<td>DP</td>
<td>82</td>
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<tr>
<td>Mostarsko Mlak</td>
<td>2010</td>
<td>2x10 60</td>
<td>1</td>
<td>DP</td>
<td>167</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>852 852</td>
<td>679.45</td>
<td></td>
<td>2277</td>
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</tbody>
</table>

DS - diversion - storage
RPS – pumped storage
ADS – adjacent - to - dam - storage
DRR – diversion - run - of - river

Power generation in the period January 1, 1992 – May 7, 1992

### HYDRO POWER PLANTS-NERETVA RIVER BASIN

#### POWER GENERATION IN PERIOD 1991 – 2011 (GWH)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tr>
<td>HPP Rama</td>
<td>540.00</td>
<td>291.00</td>
<td>205.00</td>
<td>263.00</td>
<td>478.00</td>
<td>885.00</td>
<td>624.00</td>
<td>622.00</td>
<td>624.00</td>
<td>651.80</td>
<td>722.90</td>
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<td>PSHPP Čapljina</td>
<td>482.00</td>
<td>310.00</td>
<td>346.00</td>
<td>375.00</td>
<td>109.00</td>
<td>362.00</td>
<td>177.00</td>
<td>86.00</td>
<td>159.00</td>
<td>121.65</td>
<td>281.18</td>
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<tr>
<td>HPP Mostar</td>
<td>239.00</td>
<td>5.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>24.00</td>
<td>191.00</td>
<td>218.00</td>
<td>181.13</td>
<td>197.34</td>
</tr>
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<td>HPP Jajce I*</td>
<td>251.00</td>
<td>102.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>125.00</td>
<td>198.00</td>
<td>181.00</td>
<td>233.00</td>
<td>197.95</td>
<td>226.81</td>
</tr>
<tr>
<td>HPP Jajce II*</td>
<td>170.00</td>
<td>95.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>122.00</td>
<td>352.00</td>
<td>184.00</td>
<td>303.00</td>
<td>151.83</td>
<td>170.32</td>
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<tr>
<td>HPP Poc Mlini</td>
<td>6.00</td>
<td>6.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
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<tr>
<td>HPP M. blato</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,688.00</td>
<td>793.00</td>
<td>551.00</td>
<td>488.00</td>
<td>596.00</td>
<td>1,484.00</td>
<td>1,174.00</td>
<td>1,226.00</td>
<td>1,396.00</td>
<td>1,307.00</td>
<td>1,600.00</td>
</tr>
</tbody>
</table>

**Note:** The graph shows a comparison of power generation from 1991 to 2011 for various hydroelectric plants in the Neretva River Basin. The data includes the power generation in GWh (Gigawatt-hours) for each year from 1991 to 2011. The graph is used to illustrate the performance of different plants over the years, with a focus on total power generation.
Mostar. It is located in Herzegovina-Neretva Canton. Its construction started in 1964 and completed in 1968 when it was put into operation. It is a diversion-storage plant and the Ramsa inflow water at a head of 325 m.

The plant has been in operation since its construction with short stops during the war in 1993.

The HPP Rama is very important not only because of its installed capacity of 160 MW and average annual energy output of 650 GWh (about 50% annual energy output of the company) but also because of its specific construction and natural water overferry to the dam with a reinforced concrete facing that was the largest dam in Europe.

Since its integration into the system of JP Elektroprivreda HZ HB d.d. Mostar, considerable funds have been invested in its rehabilitation. The plant is in a very good operating condition.

REHABILITATION AND MODERNIZATION

Power House

1994 Overhaul of Unit 1 and Unit 2. Repair of Unit 2 bell.
1995 Replacement of the low voltage switchgear in the power house.
1996 Replacement of the secondary equipment in Unit 1 and Unit 2 (control, excitation, protection and turbine regulation).
1998 - 1999 General overhaul of Unit 1 and Unit 2.
2000 Construction of the new GIS building outside the power house. Installation of the new GIS equipment in the new building. Replacement of the old oil cables between the unit transformer and new outdoor GIS with new cross-linked polyethylene cables. Adjustment for connection of new cables to the existing unit transformer.
2001 Replacement of the 35 kV switchgear outside the power house. Adjustment of the existing 15 kV cells to the new equipment.
2002 Installation of the 220/15 kV transformer outside the power house. Excavation of cable trenches, foundations and oil pit. Installation and putting the transformer into operation.
2003 Installation and putting the video surveillance system into operation in all HPP Rama structures. Replacement of the 35 kV cables from the 35 kV switchgear to the 35 kV portal outside the power house. PROCUREMENT and installation of a new diesel-electric generating set in the dam. 2004
2005 Reconstruction of the power house, dam and office building with optical fibers. 2007
2012 Extension of the existing GIS with two new 220 kV feeders. Installation of a new busbar protection equipment. Commencement of works on refurbishment of Unit 1. Renovation of Unit 1 and unit transformer 1 commenced at the beginning of September 2012.

CIVIL WORKS

Surge Shaft Complex – Rehabilitation Works

1994 Drilling of three drainage holes. The depth of the holes was 75, 90 and 80 respectively.
1996 Consolidation grouting of the surrounding rock. Five grout curtains were made. 39 holes with the total length of 2,434 m were drilled. Consolidation grouting of the slope. 50 holes with the length of 45–90 m and diameter of 16 mm were drilled. The total drilling length was 1957 m. The slope anchoring: 8 holes (A6, A7, A8, A9, A10, A11, A12 and A13) with the length of 82–112 m and diameter of 146 mm were drilled for anchors. The anchors consisted of a bundle of 18 steel strands with the diameter of 0.52 in.
1998 4 piezometers were installed: P8 (elevation 93.95 m a.s.l., depth 70 m), P10 (elevation 132.89 m a.s.l., depth 65 m), P11 (elevation 155.35 m a.s.l., depth 55 m) and P12 (elevation 560.00 m a.s.l., depth 55 m). To check the rock massif stability, 2 exploratory holes were drilled: E1 (elevation -73.48 m a.s.l.) and E2 (elevation -63.18 m a.s.l.), long-base extensometers with 5 measuring rods were installed in them.

1999 4 piezometers were installed: P8 (elevation 93.95 m a.s.l., depth 70 m), P10 (elevation 132.89 m a.s.l., depth 65 m), P11 (elevation 155.35 m a.s.l., depth 55 m) and P12 (elevation 560.00 m a.s.l., depth 55 m). To check the rock massif stability, 2 exploratory holes were drilled: E1 (elevation -73.48 m a.s.l.) and E2 (elevation -63.18 m a.s.l.), long-base extensometers with 5 measuring rods were installed in them.

2000 Overhaul of generator 2.
2001 Overhaul of generator 2.
2002 Overhaul of generator 2.
2003 Overhaul of generator 2.
Vertical Surge Shaft

1994 Rehabilitation of the surge shaft floor to the level of 540.00 m a.s.l. The total rehabilitation height was 29 m. 172 holes with the length of 60-100 cm and diameter of 22 mm were drilled. Drilling the holes for anchors and rock grouting, 590 holes with the length of 6 m and diameter of 46 mm, and 4 control holes with the length of 3.5 m were drilled. 390 anchor bars (reinforcing steel 40/500) with the length of 570 cm and diameter of 25 mm were installed. Pre-stressed anchors were installed along the whole length of the vertical shaft (p=70 kN in all anchors).

1998 Consolidation grouting. The cracks were repaired from the level of 544.0 to 559.0 m a.s.l. 86 holes with the diameter of 32 mm and depth of 1, 1.5 and 2 m were drilled. The total drilling length was 107 m. 242 holes with the diameter of 32 mm and depth of 3 m were also drilled. The total drilling length was 126 m.

Upper Surge Chamber

1994 Contact grouting of the holes with the depth of approx. 60 cm. Floor slab concreting (concrete thickness 10 cm). Stab joint sealing. Contact grouting of the buttress foundation footings.

Lower Surge Chamber

1994 Contact grouting with chemical mixtures. 496 holes with the length of 80-100 cm and diameter of 22 mm were drilled. Contact grouting with cement mixtures. 372 holes with the length of 60-100 cm and diameter of 22 mm were drilled. Consolidation grouting. 66 holes with the length of 200 cm and diameter of 46 mm were drilled. Additional grouting. 175 holes with the length of 20 cm and diameter of 16 mm were drilled. The total drilling length was 40 m. Consolidation grouting. 60 holes with the length of 200 cm and diameter of 46 mm were drilled. Consolidation grouting of the protection rosette. 36 holes with the length of 15 m and diameter of 56 mm were drilled. The total drilling length was 540 m.

1995 Contact and consolidation grouting, rehabilitation of the concrete lining damaged by concentrated water breaks and rehabilitation of the damaged concrete lining surface were carried out at selected chainages between 1+000 to 1+450. The works were included in urgent repair works. Contact grouting from chainage 1+395 to 1+450. The works were carried out from chainage 1+035 to 1+422.50 m by contact and consolidation grouting of the concrete lining and rock as well as rehabilitation of the concrete lining in places of concentrated water breaks.

1997 Contact grouting from chainage 1+395 to 1+600. The hole depth was 1.5 m, and diameter 46 mm and 56 mm. Cores were repaired in 4 holes by the sluice gate. The total length of the repaired cracks in the tunnel was 63 m and by the sluice gate 10 m.

1998 Consolidation grouting from chainage 1+085 to 3+875. The hole depth was 1, 5, 8 and 12 m, and diameter 46 mm and 56 mm. The total length of the holes drilled in 1997 and 1998 was 1,596 m. Contact grouting from chainage 3+085 to 3+875. The hole depth was 1.5 m, and diameter 46 mm and 56 mm. The total length of the holes drilled in 1997 and 1998 was 2,790 m.

1999 Rehabilitation of the grout curtain – phase 2: test section from grout hole 161 to 168. Works were carried out in the period November 2, 1999 – January 8, 2000.

2003 Rehabilitation of the reinforced concrete facing. Repair and treatment of slab cracks and joints; refurbishment of the foil and protection steel sheet on the joint between the reinforced concrete facing and inspection gallery as well as repair of defective concrete along the slab edges. Rehabilitation of the grout curtain – phase 2: access tunnel (including the fan) and road from grout hole 169 to 237.

2005 Rehabilitation of the stilling basin – phase 2: construction of the roads around the reservoir. Rehabilitation of the seismic station in the dam (GeoSIG instruments) and meteorological station in the dam (OTT instruments); monitoring equipment automation (PZET instruments).

2006 Rehabilitation of the grout curtain – phase 2: access tunnel. Works were carried out in the period March – October.

Elbow

1996 77 holes with the length of 80–100 cm and diameter of 22 mm were drilled in 9 rings.

Access Tunnel

1996 17 holes with the length of 80 –100 cm and diameter of 22 mm were drilled.

Rehabilitation Works

1996 Rehabilitation of the reinforced concrete facing by sand blasting and re-profiling; repair of defective concrete.

1998 Rehabilitation of the reinforced concrete facing. Continuation of 1996 rehabilitation of the second and third row of slabs from elevation 580.00 to 571.00 m a.s.l. Works on protection of the dam abutments.

1999 Rehabilitation of the grout curtain – phase 2: test section from grout hole 161 to 168. Works were carried out in the period November 2, 1999 – January 8, 2000.

2003 Rehabilitation of the reinforced concrete facing. Repair and treatment of slab cracks and joints; refurbishment of the foil and protection steel sheet on the joint between the reinforced concrete facing and inspection gallery as well as repair of defective concrete along the slab edges.

2005 Rehabilitation of the grout curtain – phase 2: access tunnel (including the fan) and road from grout hole 169 to 237.

2007 Rehabilitation of the seismic station in the dam (GeoSIG instruments) and meteorological station in the dam (OTT instruments); monitoring equipment automation (PZET instruments).

2009 Extension of the 220 kV switchgear (3x115 kV, cable trench); clearance of the plateau outside the power house.

2010 Rehabilitation of the stilling basin – phase 2: construction of the structure for protection of the left bank opposite the bottom outlet; treatment of the land –slide site around the reservoir.

2011 Replacement of the power house ceiling lining; construction of wooden roof structures on the control and monitoring building in the dam; construction of a metal car shelter and the water storage room shelter; maintenance of roads around the hydraulic structures; rehabilitation of the grout curtain – phase 2: inspection gallery. Works were carried out in the period March – October.
The PSPP Čapljina is located in Herzegovina – Neretva Canton. It was put into operation on November 25, 1979 and is a unique plant in the system of JP Elektroprivreda HZ HB d.d. Mostar for many reasons. It was the first pumped storage power plant in the former Yugoslavia. With its two 240 MVA motor-generators it contributes to reliability of the power system as well as solving the peak load problem. In the periods of minimum water level and low load in the system, the PSPP Čapljina can pump water from the lower to the upper reservoir with two vertical pumps – turbines. It collects its catchment inflow water and the Trebišnjica water through the Popovo field. Its operation also has an impact on the lower Neretva. It is therefore necessary to take both the Trebišnjica and Neretva into consideration when the plant operation and control are planned. It was put into operation in 1979. During its construction it was the first pumped storage power plant in the former Yugoslavia. The lower reservoir Svitava was constructed in Deransko-Svitavsko Blato with an embankment for water storage for pump operation.

### REHABILITATION AND MODERNIZATION

- **1998**
  - Replacement of the control room air-conditioning system in the power house.
  - Replacement of 220 kV pneumatic circuit breakers in the 220 kV outdoor switchgear.
  - Replacement of the power house air-conditioning system.
  - Replacement of the power house elevator.
  - Installation of a new video surveillance and fire-alarm system.
  - Reconstruction and asphalting the access road to the intake structure.
  - Installation of a new protection and control system for the 220 kV switchgear (SCADA system).

- **2003**
  - Replacement of water discharge pipes.
  - Installation of a new sequential event recorder.
  - Replacement of 220 kV pneumatic disconnecting switches in the 220 kV outdoor switchgear.
  - Replacement of the power house air-conditioning system.
  - Replacement of the power house elevator.
  - Installation of a new video surveillance and fire-alarm systems.
  - Reconstruction and asphalting the access road to the intake structure.

- **2009**
  - Replacement of pneumatic disconnecting switches in the 220 kV outdoor switchgear and laying a 9 km optical fiber from the intake structure Hutovo to the power house; 220 kV switchgear corrosion protection.

### GENERATION

- **1998**
  - Replacement of the control room air-conditioning system in the power house.
  - Replacement of 220 kV pneumatic circuit breakers in the 220 kV outdoor switchgear.
  - Replacement of the power house air-conditioning system.
  - Replacement of the power house elevator.
  - Installation of a new video surveillance and fire-alarm system.
  - Reconstruction and asphalting the access road to the intake structure.
  - Installation of a new protection and control system for the 220 kV switchgear (SCADA system).

- **2003**
  - Replacement of water discharge pipes.
  - Installation of a new sequential event recorder.
  - Replacement of 220 kV pneumatic circuit breakers in the 220 kV outdoor switchgear.
  - Replacement of the power house air-conditioning system.
  - Replacement of the power house elevator.
  - Installation of a new video surveillance and fire-alarm system.
  - Reconstruction and asphalting the access road to the intake structure.
  - Installation of a new protection and control system for the 220 kV switchgear (SCADA system).

- **2009**
  - Replacement of pneumatic disconnecting switches in the 220 kV outdoor switchgear and laying a 9 km optical fiber from the intake structure Hutovo to the power house; 220 kV switchgear corrosion protection.
HPP MOSTAR

The hydro power plant Mostar is the last plant in the range of the plants construct-ed on the Neretva river and is located 6 km upstream of the city of Mostar in Her-zegovina-Neretva Canton. It was put into operation in 1987. During the war, most of the equipment was destroyed. The whole power house was flooded. After rehabili-tation of the damaged equipment, it was put into operation again in 1997.

**HPP MOSTAR - TECHNICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Number of units</td>
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</tr>
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<td>Installed capacity</td>
<td>12 MW</td>
</tr>
<tr>
<td>Installed discharge</td>
<td>100 m³/s</td>
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<tr>
<td>Technical minimum capacity</td>
<td>12 MW</td>
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<tr>
<td>Average annual energy output</td>
<td>310 GWh</td>
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<tr>
<td>Generation set efficiency</td>
<td>91%</td>
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<tr>
<td>Energy production from 1m³ of water</td>
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<tr>
<td>Water quantity needed for 1m³</td>
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<tr>
<td>Minimum discharge requirements (boulevard)</td>
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<tr>
<td>Average annual discharge</td>
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<td>Energy output of reservoir</td>
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<td>Gross head - minimum</td>
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<td>Manufacturer</td>
<td>Končar</td>
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<td>Maximum nuclear power</td>
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<td>Nominal degree of utilization</td>
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<td>Air</td>
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<tr>
<td>Rotor cooling system</td>
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<td>Stator material</td>
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<td>Dam construction height</td>
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<td>Dam height</td>
<td>20 m</td>
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<td>100 m³/s</td>
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<tr>
<td>Each water level</td>
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<td>Each water level</td>
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<td>10.32 hm³</td>
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<td>Normal maximum level</td>
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<td>Minimum operating maximum</td>
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<td>Riemann bed elevation</td>
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<td>Dam volume</td>
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<tr>
<td>Reservoir area of full supply</td>
<td>1,958 m²</td>
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<tr>
<td>Maximum spillway section discharge</td>
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<td>Maximum bottom outlet discharge</td>
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<tr>
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<tr>
<td>Flooded zone in case of dam collapse</td>
<td>75 km</td>
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<td>Width of embankment dam at crest</td>
<td>1 m</td>
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</tbody>
</table>

**REHABILITATION AND MODERNIZATION**

1992 – 1996 - The plant was in the war zone.
- It was destroyed and the power house flooded.
1995 – 1996 - Preparation and reconstruction of the civil structures.
1997 – 1998 – Water discharge, clearance; refurbishment of the units; reconstruction of the civil structures (reconstruc-tion of the whole roof, construction of a new alumi-num-glass facade on the part of the building with of-fices and the control room, reconstruction of the whole facade, construction of the bridge - road above the spill-way); installation of switchgears; 110 kV SF6 switchgears, 10 kV switchgear, G.A.AK switchgear; installation of DC power supply systems (220 and 24 V DC); replacement of control cubicles and protection systems of the units and switchgears; installation of the excitation system in all units; installation of SCADA system for monitoring and control (complete automation); rehabilitation of all power transformers; refurbishment and modernization (complete automation) of the turbine regulation system; rehabilitation of servomotors (intake structure gate, spill-way section gates and bottom outlet gate); installation of a new flap gate in spillway section 2; rehabilitation of cranes and radial gates in spillway sections 1 and 3 and equipment of the operating houses.

1997 – Putting Unit 3 into operation
- Rehabilitation of the fire damaged Unit 1.
1998 – Putting Unit 2 into operation
1999 – Putting Unit 1 into operation
- Rehabilitation of the Neretva right bank downstream of the plant (retaining wall).
- Delivery, installation and putting a new 440 kW diesel-electric generating set into operation.
2000 – Deepening the Neretva river bed downstream of the plant (phase 1).
- Rehabilitation of the pressure tank of the fire protec-tion system in the unit transformers.

- Clearance of the bank area around the reservoir.
- Deepening the Neretva river bed downstream of the plant (phase 2).
- Monitoring system installation.
2002 – Rehabilitation of one guide vane apparatus servomo-tor and two lock servomotors in Unit 1.
- Replacement of the runner cap lining in all three units.
2003 – Rehabilitation of the bottom outlet regulating gate.
2004 – Rehabilitation of the radial gate in spillway section 3.
2005 – Rehabilitation of the power house roof after a storm.
- Rehabilitation of all three storm damaged units.
- Connecting the plant with the Generation Control Center (GCC) Mostar for remote data reading and power control.
2006 – Rehabilitation of the Neretva left bank downstream of the plant.
- Protection of the structures in the left bank area at the reservoir level of 78.00 m a.s.l.
- Installation of a flap for water directing to spillway sec-tion 2 and rehabilitation of the inspection equipment.
- Repair of the sliding ring in all three units.
2007 – Refurbishment of the 2x10/2 t cranes.
- Test lifting the reservoir level to the maximum of 78.00 m a.s.l.
- Rehabilitation of the fire damaged Unit 1.
- Construction of a warehouse in the plant area.
2008 – Replacement of battery cells in the DC power supply systems (220 and 24 V DC);
- Construction and installation of a floating dam and auxiliary floating dam.
- Lifting the reservoir level to the maximum of 78.00 m a.s.l.
2009 – Refurbishment of the 2x10/2t crane.
- Construction of a warehouse in the plant area.
- Lifting the reservoir level to the maximum of 78.00 m a.s.l.
- Rehabilitation of the sewage system and access plateau.
- Dyke rehabilitation.
- Detailed inspection of the servomotor in the bottom outlet regulating gate.
- 35 kV switchgear detailed inspection.
- 110 kV switchgear detailed inspection.
- Installation of the 100/4 MVA auxiliary transformer (TOP).
- Circuit breaker testing and SF6 gas quality control in the 110 kV switchgear.
- Overhaul and rehabilitation of cavitation damaged Turbine 3.
- Refurbishment and upgrading the power house air-conditioning system.
- Corrosion protection of some equipment of all three turbines and the cooling system.
- Rehabilitation of the earthfill dam diaphragm.
- Reconstruction of the power house roof skylights.
- Rehabilitation of the left and right bank downstream of the plant damaged by 2010 flood water.
- Modernization of SCADA system for monitoring and control.

The following is regularly carried out: preventive and predictive maintenance (detailed inspection of the units, monthly inspection of the units, inspection of the switchgears, testing of the electrical protection system, testing of transformer and turbine oils, full battery discharges, testing of insulating properties of the generators and unit transformers etc.) on a daily, three-monthly, half-yearly, yearly and several-year basis to keep the plant in a good operating condition. As this is the last plant in the range of the plants constructed on the Neretva river, it must discharge a biological minimum of 50 m³/s and has a planned 6 hour stoppage in a year.

In the period 1997 (refurbishment completion) – 2011, the energy output was 3,182 GWh and a record of 320 GWh was in 2010.
The hydro power plant Peć Mlini is located in the municipality of Grude in West Herzegovina Canton. It collects the Tihaljina inflow water at a head of 107 m between the Imotski-Grude Field – Nuga and power house in the Petnik hill foot in Peć Mlini. The HPP Peć Mlini collects the inflow water of the Vrlika flowing in the south-west part of the Imotski-Grude Field and the inflow water of Grudsko Vrilo. The water flows to the daily reservoir with the area of 40 ha and capacity of 800000 m$^3$. The plant was put into operation in 2004.

It was the first hydro power plant constructed in the former Yugoslavia after the war. During its eight-year operation, its total revenue reached the investment. With the total energy output of 500 GWh (70 GWh average annual output), this plant justified fifty-year design solutions. Its construction started in 2001 according to the design of Elektroprojekt Zagreb and took 2.5 years. It was financed out of the Company funds and credit funds (50:50). The credit for this investment amounting to BAM 62 M was repaid in 2012. The plant can be used not only for power generation but also for agriculture, flood protection and tourism.

### HPP Peć Mlini - Technical Characteristics

<table>
<thead>
<tr>
<th>Main Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of units</td>
<td>2</td>
</tr>
<tr>
<td>Installed capacity</td>
<td>15 MW</td>
</tr>
<tr>
<td>Installed discharge</td>
<td>30 m$^3$/s</td>
</tr>
<tr>
<td>Technical minimum capacity</td>
<td>4.8 MW</td>
</tr>
<tr>
<td>Average annual energy output</td>
<td>80 GWh</td>
</tr>
<tr>
<td>Generator set efficiency</td>
<td>%</td>
</tr>
<tr>
<td>Energy production from 1 m$^3$ of water</td>
<td>0.27 kWh</td>
</tr>
<tr>
<td>Water quantity needed for 1 kWh</td>
<td>3.6 m$^3$/s</td>
</tr>
<tr>
<td>Minimum discharge requirements (biological)</td>
<td>m$^3$/s</td>
</tr>
<tr>
<td>Average annual exchange</td>
<td>197.4 m$^3$/s</td>
</tr>
<tr>
<td>Energy value of reservoir</td>
<td>0.4 GWh</td>
</tr>
<tr>
<td>Utilizable reservoir volume</td>
<td>3.0 hm$^3$</td>
</tr>
<tr>
<td>Gross head - maximum</td>
<td>21.7 m</td>
</tr>
<tr>
<td>Gross head - minimum</td>
<td>15 m</td>
</tr>
<tr>
<td>Tail water level</td>
<td>57 m a.s.l.</td>
</tr>
</tbody>
</table>

#### Generators

<table>
<thead>
<tr>
<th>Type</th>
<th>3-phase synchronous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Končar</td>
</tr>
<tr>
<td>Put into operation</td>
<td></td>
</tr>
<tr>
<td>Nominal power</td>
<td>18 MVA</td>
</tr>
<tr>
<td>Power factor cos $\phi$</td>
<td>0.8</td>
</tr>
<tr>
<td>Minimum reactive power</td>
<td>MVAr</td>
</tr>
<tr>
<td>Nominal degree of utilization</td>
<td>%</td>
</tr>
<tr>
<td>Stator voltage</td>
<td>10.5 kV</td>
</tr>
<tr>
<td>Stator cooling system</td>
<td>Air</td>
</tr>
<tr>
<td>Rotor cooling system</td>
<td>Air</td>
</tr>
<tr>
<td>Number of poles</td>
<td></td>
</tr>
</tbody>
</table>

#### Turbines

<table>
<thead>
<tr>
<th>Type</th>
<th>Francis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Litostroj</td>
</tr>
<tr>
<td>Rated power</td>
<td>15.88 MW</td>
</tr>
<tr>
<td>Technical minimum capacity</td>
<td>4.8 MW</td>
</tr>
<tr>
<td>Installed discharge</td>
<td>120 m$^3$/s</td>
</tr>
<tr>
<td>Minimum discharge</td>
<td>m$^3$/s</td>
</tr>
<tr>
<td>Rated speed of rotation</td>
<td>rpm</td>
</tr>
<tr>
<td>Runaway speed</td>
<td>rpm</td>
</tr>
<tr>
<td>Nominal degree of utilization</td>
<td>%</td>
</tr>
<tr>
<td>Runner diameter</td>
<td>mm</td>
</tr>
<tr>
<td>Runner material</td>
<td>Steel</td>
</tr>
</tbody>
</table>
The HPP Mostarsko Blato is located southwest of Mostar and uses energy potential at the head of 176 m between Mostarko Blato and Bišće Field i.e. the Neretva river valley. The HPP Mostarsko Blato collects the Lištica catchment inflow water. This plant is used not only for power generation but also for the field flood protection. Its construction started in 2006 and investment amounted to BAM 140 M.

The plant consists of 9 parts: reservoir, intake structure, headrace tunnel, surge tank and valve chamber, penstock, powerhouse, tailrace basin, enclosed flood channel and linking transmission line.

### HPP MOSTARSKO BLATO - TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>HPP MOSTARSKO BLATO - MAIN DATA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of units</td>
<td>2</td>
</tr>
<tr>
<td>Installed capacity</td>
<td>60 MW</td>
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<tr>
<td>Installed discharge</td>
<td>6.0 m/s</td>
</tr>
<tr>
<td>Technical minimum capacity</td>
<td>10 MW</td>
</tr>
<tr>
<td>Average annual energy output</td>
<td>10.7 GWh</td>
</tr>
<tr>
<td>Generator set efficiency</td>
<td>90.89 %</td>
</tr>
<tr>
<td>Energy production from 1m³ of water</td>
<td>0.416 kW</td>
</tr>
<tr>
<td>Water quantity needed for 1GWh</td>
<td>2.4 m³</td>
</tr>
<tr>
<td>Average annual discharge</td>
<td>1.4 m³</td>
</tr>
<tr>
<td>Energy value of reservoir</td>
<td>0.8 GWh</td>
</tr>
<tr>
<td>bracelets storage capacity</td>
<td>1.0 km³</td>
</tr>
<tr>
<td>Dischargeable reservoir volume</td>
<td>0.96 m³</td>
</tr>
<tr>
<td>Gross head - maximum</td>
<td>245 m</td>
</tr>
<tr>
<td>Gross head - normal</td>
<td>170.2 m</td>
</tr>
<tr>
<td>Gross head - minimum</td>
<td>173.5 m</td>
</tr>
<tr>
<td>Tailwater level</td>
<td>47 m.a.s.</td>
</tr>
</tbody>
</table>

### MAIN DATA

- **Number of units**: 2
- **Installed capacity**: 60 MW
- **Installed discharge**: 6.0 m/s
- **Technical minimum capacity**: 10 MW
- **Average annual energy output**: 10.7 GWh
- **Generator set efficiency**: 90.89%
- **Energy production from 1m³ of water**: 0.416 kW
- **Water quantity needed for 1GWh**: 2.4 m³
- **Average annual discharge**: 1.4 m³
- **Energy value of reservoir**: 0.8 GWh
- **Bracelets storage capacity**: 1.0 km³
- **Dischargeable reservoir volume**: 0.96 m³
- **Gross head - maximum**: 245 m
- **Gross head - normal**: 170.2 m
- **Gross head - minimum**: 173.5 m
- **Tailwater level**: 47 m.a.s.

### GENERATORS

- **Type**: 3-phase synchronous
- **Manufacturer**: Končar
- **Put into operation**: 2010
- **Nominal power**: 35.3 MVA
- **Power factor cos φ**: 0.85
- **Minimum degree of utilization**: 96.1 %
- **Stator voltage**: 10.5 kV
- **Stator cooling system**: Water
- **Rotor cooling system**: Air
- **Number of poles**: 12

### TURBINES

- **Type**: NT LIV/GST/15
- **Manufacturer**: Litostroj
- **Rated power**: 29.960 MW
- **Technical minimum capacity**: 10 MW
- **Installed discharge**: 18 m³/s
- **Minimum discharge**: 7.2 m³/s
- **Rated speed of rotation**: 500 rpm
- **Nominal degree of utilization**: 93.5 %
- **Back water level**: 224.5 m.a.s.
- **Bracelets storage capacity**: 1.2 km³
- **Minimum operating reservoir level**: 221.50 m.a.s.
- **Normal operating reserve level**: 223.50 m.a.s.
- **Bracelets test reservoir**: 234.00 m.a.s.
- **Maximum spillway action discharge**: 20 m³/s
- **Total spillway capacity**: 60 m³/s
The hydro power plant Jajce I is located on the left bank of the Vrbas river by the road Jajce–Banjaluka in Middle Bosnia Canton. It is 7 km far from the town of Jajce. It is a diversion plant and collects the inflow water of the Big Pliva lake which is situated at the level of 428 m asl.

The plant was put into operation in 1957. It was damaged in the war. The equipment was destroyed due to a flood in the turbine area and fire.

### Rehabilitation and Modernization

**1995 – 1996** Rehabilitation after a fire and preparation for the plant refurbishment.

**1998** First refurbishment of the units: replacement of the turbine regulation system; replacement of the control, protection and measuring equipment including the 0.4kV auxiliary switchgear as well as replacement of the 220V DC power supply system.

**1999** Installation of SCADA system for monitoring, control and measuring. Reconstruction of the 100+5 turbine.

**2000** Replacement of the 110 kV and 35 kV switchgear including all protection, control and measuring equipment.

**2001** Overhaul of both units; installation of a new diesel-electric generating set; replacement of the CO2 fire extinguisher; installation of a new fire-alarm system.

**2005** Replacement of the excitation system in both units with ABB UNITROL static excitation system with two fully controlled thyristor bridges and regulator; replacement of the transformers for excitation and electrical braking of generators.

**2006** General overhaul of the units including rehabilitation of all bearings; replacement of six single phase transformers with two 10.5/110 kV three phase unit transformers.

**2007** Replacement of the pressure vessel in the surge tank valve; the Control Center – Vrbas River Basin Unit was established and put into operation.

**2009** Replacement of two 220V stationary batteries.

**2010** Upgrading and adjustment of the intake structure gate equipment for data transmission to the control room, replacement of one 35110 kV regulating transformer.

**2011** Replacement of another 35110 kV regulating transformer.

---

**HPP JAJCE I - TECHNICAL CHARACTERISTICS**

### MAIN DATA
- **Number of units:** 2
- **Installed capacity:** 60 MW
- **Installed discharge:** 74 m³/s
- **Technical minimum capacity:** 17 MW
- **Average annual energy output:** 220 GWh
- **Generator set efficiency:** 94 ±%
- **Energy production from 1m³ of water:** 0.23 kWh
- **Water quantity needed for 1kWh:** 4.23 m³
- **Minimum discharge requirements (biological):** 3 m³/s
- **Average annual inflow:** 54 ± m³/s
- **Energy value of reservoir:** 0.51 GWh
- **Reservoir storage capacity:** 24 hm³
- **Gross head – maximum:** 58.0 m
- **Gross head – normal:** 58.8 m
- **Gross head – minimum:** 88.4 m
- **Turbine head:** 328.2 m N.N.

### GENERATORS
- **Type:** 3-phase synchronous
- **Manufacturer:** Končar
- **Put into operation:** 1957
- **Nominal power:** 36 MVA
- **Power factor cos φ:** 0.8
- **Maximum reactive power:** 20 MVAr
- **Nominal degree of utilization:** 91.5 %
- **Stator voltage:** 10.5 kV
- **Stator cooling system:** Air (water cooled)
- **Rotor cooling system:** Air (water cooled)
- **Number of poles:** 20

### TURBINES
- **Type:** Francis
- **Manufacturer:** KMW
- **Rated power:** 30 MW
- **Technical minimum capacity:** 20 MW
- **Installed discharge:** 35 m³/s
- **Minimum discharge:** 12 m³/s
- **Rated speed of rotation:** 300 rpm
- **Runaway speed:** 540 rpm
- **Nominal degree of utilization:** 94 %
- **Runner diameter:** 2230/2190/2050 mm
- **Runner material:** Ch-Ni 13-4

### DAM AND RESERVOIR
- **Minimum operating reservoir level:** 425.8 m N.N.
- **Maximum operating reservoir level:** 427.8 m N.N.
- **Gross head – maximum:** 98.6 m
- **Gross head – normal:** 98.4 m
- **Gross head – minimum:** 88.4 m
- **Tail water level:** 328.5 m a.s.l.
- **Headrace tunnel length:** 5700 m
- **Headrace tunnel diameter:** 5.4 m
- **Maximum flow through headrace tunnel:** 60.8 m³/s
- **Maximum flow velocity through headrace tunnel:** 2.64 m/s
- **Average net head:** 92.5 m
HPP JAJCE II

The hydro power plant Jajce II was constructed on the Vrbas river 17 km downstream of the town of Jajce in Middle Bosnia Canton. It has Francis turbines and three 3-phase synchronous generators with the nominal power of 12.5 MW and stator voltage of 6 kV. The turbine installed discharge is 27 m³/s and normal gross head 46 m. The average annual energy output is 175 GWh. It was put into operation in 1954.

REHABILITATION AND MODERNIZATION

2000 – 2001 Replacement of the electrical protection system of the units and transmission line; installation of a new 35 kV switchgear.

2001 Replacement of the surge tank hydraulic unit.

2003 Installation of a new control, inspection and regulation equipment of the units.

2004 Rehabilitation of the 35 kV transmission line.

2005 Replacement of the DC power supply system.

2006 Replacement of the 35 kV switchgear equipment; emptying the reservoir; replacement of the old excitation system (analog voltage regulator) with a modern excitation system (digital voltage regulator).

2005, 2006 and 2010 General overhaul of all three units.

2007 Installation of the hydraulic intake structure cleaning machine and automated dam monitoring equipment.

2008 Replacement of the air-conditioning system and installation of a new moisture removal system.

2009 Rehabilitation and automation of the crane; oil drying and filtration, and drying the unit transformer active part.

2009 – 2012 Replacement of the house transformers.

2008 – 2010 Overhaul of the diversion tunnel auxiliary gate and main gates.

2011 Overhaul of the intake structure gate; rehabilitation of the access road.

All three unit transformers are planned to be replaced. For extension of the plant’s lifespan and its better power utilisation, design documents for refurbishment of the plant is prepared. The refurbishment would include replacement of the equipment in the plant (turbine, generator, cooling system...), increasing the dam height by 3 m and construction of a small hydro power plant on the diversion tunnel.

HPP JAJCE II – TECHNICAL CHARACTERISTICS

MAIN DATA

- Number of units: 3
- Installed capacity: 30 MW
- Installed discharge: 78.8 m³/s
- Technical minimum capacity: 5.5 MW
- Average annual energy output: 175 GWh
- Generator set efficiency: 81%
- Energy production from 1 m³ of water: 0.103 MWh
- Water quantity needed for 1 kWh: 9.7 m³
- Minimum discharge requirements (biological): 0 m³/s
- Average annual recharge: 67 m³/s
- Energy value of reservoir: 0.13 GWh
- Reservoir storage capacity: 2.1 hm³
- Minimum reservoir storage: 1.3 hm³
- Gross head – maximum: 49 m
- Gross head – normal: 46 m
- Gross head – minimum: 39 m
- Tailwater level: 279.8 m a.s.l.

GENERATORS

- Type: 3-phase synchronous
- Manufacturer: Končar
- Put into operation: 1954
- Nominal power: 12.5 MW
- Power factor cos φ: 0.8
- Maximum reactive power: 7.5 MVAr
- Nominal degree of utilization: 97%
- Stator voltage: 6.3 kV
- Stator cooling system: Air (water cooled)
- Rotor cooling system: Air
- Number of poles: 24

TURBINES

- Type: Francis
- Manufacturer: Voith + Litostroj
- Rated power: 10 MW
- Technical minimum capacity: 5.5 MW
- Installed discharge: 26.0 m³/s
- Minimum discharge: 14.6 m³/s
- Rated speed of rotation: 250 rpm
- Beveling speed: 39.5 rpm
- Nominal degree of utilization: 90%
- Runner diameter: 1460 mm
- Runner material: Stainless steel
- Maximum operating reservoir level: 328.5 m a.s.l.
- Minimum operating reservoir level: 321.5 m a.s.l.
- Maximum water level: 331.1 m a.s.l.
- Minimum water level: 318.1 m a.s.l.
- Headrace tunnel length: 2804 m
- Headrace tunnel diameter: 5.5 m
- Average net head: 42.5 m
- Installed discharge for one unit: 26.0 m³/s
POWER DISTRIBUTION DIVISION

The Power Distribution Division carries out the activities of power distribution to customers, exploitation, regular maintenance (inspection, control and overhaul) of lines and facilities and investment maintenance of distribution lines and facilities, activities related to the telecommunication and information system and other activities according to the Rulebook on Internal Organization of JP Elektroprivreda HZHB d.d. Mostar.

The main organizational parts of the Division are: Executive Director’s Office, Distribution Area Unit SOUTH, Distribution Area Unit CENTER and Distribution Area Unit NORTH.

The Division operates and maintains 11,668 km long 10, 20 and 0.4 kV distribution overhead and underground networks, and a 285 km long 35 kV grid. The total installed power of the 35/10(20) kV substations is 85.5 MVA and of 10(20)/0.4 kV is 1,037 MVA. The total number of substations is 3,543. There are 991 employees who are responsible for quality power distribution to customers.

The objective of the Division is continuous improvement of the distribution network and its operation through reconstruction and construction of facilities, and electrification of the areas of its responsibility.

In the first year of its operation the activities of the Power Distribution Division were focused on reconstruction and rehabilitation of the facilities damaged and destroyed in the war. The rehabilitation and reconstruction were financed out of our own funds and funds provided by international organizations in cooperation with local municipalities to ensure conditions for return of refugees and displaced persons. To ensure optimal working and operating conditions there were reconstructed and constructed distribution facilities and network, office buildings and warehouses.

THIRD ELECTRIFICATION PROJECT

Through the Third Electrification Project, from November, 2004 to August, 2006, there were reconstructed distribution facilities and the investment was estimated at around BAM 12.5 mil. The Project included eight 10(20)/0.4 kV transformer substations of prefabricated concrete type, twenty nine 10(20)/0.4 kV tower-mounted transformer substations, around 55 km long 10(20) kV lines.
and 35 kV MV overhead and underground lines of non-voltage level, and around 200 km long 0.4 kV LV networks with house connections.

**DISTRICT FACILITIES FINANCED OUT OF EBRD LOAN**

In the period from December, 2006 to March, 2009, JP Elektroprivreda HZHB d.d. Mostar invested around BAM 33 mil in reconstruction and construction of 212 distribution facilities out of the loan funds provided by the European Bank for Reconstruction and Development (EBRD). These funds were used for construction of two 35/1 kV substations and one 35 kV line, reconstruction and construction of a large number of 10(20)/0.4 kV substations of both types, concrete housed and tower-mounted. LV overhead and underground networks were constructed and reconstructed. There were installed 58 remotely controlled disconnecting switches (SECTOS).

**FACILITIES FINANCED OUT OF EIB LOAN**

In the period from July, 2006 to March, 2011, JP Elektroprivreda HZHB d.d. Mostar invested around BAM 21 mil in reconstruction and construction of 225 distribution facilities out of the loan funds provided by the European Investment Bank (EIB). These funds were used for reconstruction and construction of a large number of 10(20) kV lines with steel lattice towers, 10(20) kV overhead and underground networks, reconstruction of several switchgears, reconstruction and construction of a large number of 10(20)/0.4 kV substations of both types, concrete housed and tower-mounted. LV overhead and underground networks many kilometers long were constructed and reconstructed. There were installed 10 remotely controlled disconnecting switches (SECTOS).

**AUTOMATIC METER READING PROJECT – AMR SYSTEM**

New technological solutions of electronic meters enable application of modern ways of communication and acceptance of power quality parameters, storage and analysis without a person approaching a meter.

The project enables: automatic meter reading, remote cut in and cut off, cut off control, power quality control, customers’ consumption control, easier monitoring of losses, detection of meter manipulation, personal consumption monitoring through the Internet.

The reading costs are reduced, losses are reduced, and quality parameters monitoring is enabled. The process of cutting off is easier and more efficient, and the process of billing is faster.

Installation of remote communication meters as well as connecting to the automatic meter reading (AMR) system are continued. A large number of old meters was replaced with new ones with customers whose power consumption is registered at the MV level. The unified base of remotely read meters is increasing, and at the moment it has measuring data for around 10,000 meters.

In addition to regular activities on distribution loss reduction through different types of control, meter are continuously relocated and remote reading system is developed for all consumption classes.

**SCADA SYSTEM PROJECT**

To ensure reliable power supply in the distribution system JP Elektroprivreda HZHB d.d. Mostar has started automation of the distribution network by introducing telecommunication and information technologies in the process of the system supervision and control.

Considerable funds were invested to modernize the primary and secondary equipment, and to extend the telecommunication network to be prepared for introduction of new technologies in the process of the distribution system automatic control.

New facilities were constructed and a large number of the existing facilities were reconstructed at the 15 and 10 kV voltage level. The total length of installed optical fiber cables was significantly increased, and there were installed 68 remotely controlled switches. To use their functions properly there are three systems of automatic control (mini SCADA) in the distribution dispatch centers in Mostar, Grude and Livno Units.

As a part of preparation JP Elektroprivreda HZHB d.d. Mostar has started the process of procurement of design documents for preparation of the conceptual, analytical and technical solution for the SCADA/OMS system with the communication equipment. The design documents will give a detailed description of technical possibilities of remote control application in the distribution system of JP Elektroprivreda HZHB d.d. Mostar; a detailed description of the existing remote control equipment; and a detailed description of the equipment upgrading and existing system extension for the desired functionality of the remote control system.

For this purpose there was signed the contract with KIN Bank valued at BAM 12.5 mil of loan funds and BAM 2 mil of grant funds. The implementation should be completed within the next five years.

**GIS/TIS SYSTEM PROJECT**

Taking into consideration the importance of establishing a unified, technical and spatial database necessary for regular operation, analysis and reporting on all information related to power infrastructure and all events related to the power infrastructure, JP Elektroprivreda HZHB d.d. Mostar has started implementation of the geospatial information system (GIS/TIS) through the Power Distribution Division. The implementation of this system will enable: establishment of the unified technical and spatial database on power facilities, centralization and unification of data for power infrastructure, establishing conditions for the system application with the following objectives:

- Network planning and development
- Network planning and maintenance
- Network analysis
- Network supervision and control
- Managing the documentation that are stored in the central database and islands in the support network, including network standardization, maintenance and modernization of the quality system, data availability and transformation cost reduction.

The AMR center was procured and implemented, and 3000 modern electronic meters with additional equipment were procured (around BAM 4 mil).

**CONCLUSION**

The project enables: automatic meter reading, remote cut in and cut off, cut off control, power quality control, customers’ consumption control, easier monitoring of losses, detection of meter manipulation, personal consumption monitoring through the Internet. The design documents will give a detailed description of technical possibilities of remote control application in the distribution system of JP Elektroprivreda HZHB d.d. Mostar; a detailed description of the existing remote control equipment; and a detailed description of the equipment upgrading and existing system extension for the desired functionality of the remote control system.
DISTRIBUTION AREA DEVELOPMENT STUDIES
In cooperation with the eminent institutes from neighboring countries there are prepared or being prepared distribution area development studies, for the period up to 2020, based on The Integral Study of Development 2006 – 2010 with Projection to 2020. In addition to this study, the following studies are being prepared:
- Prospects and technical-economic conditions for distribution network transition to 20 kV voltage
- Plan for distribution network transition from 10 kV to 20 kV voltage in Grade unit

Lately, there have been a lot of applications for the distribution network connection of the facilities that will generate power from renewable energy sources. Taking into consideration the importance of the situation and expecting the expansion in this area, the Distribution Division ordered the study: Impact of Distributed Generation (of Power Plants) on Distribution Network, which shall be completed in early 2013.

DISTRIBUTION NETWORK LOSSES

<table>
<thead>
<tr>
<th>Year</th>
<th>Accepted MWh</th>
<th>Billed MWh</th>
<th>Losses MWh</th>
<th>Loss %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>771,121</td>
<td>522,848</td>
<td>248,273</td>
<td>32.20</td>
</tr>
<tr>
<td>1996</td>
<td>885,803</td>
<td>604,981</td>
<td>280,822</td>
<td>31.70</td>
</tr>
<tr>
<td>1997</td>
<td>938,448</td>
<td>667,478</td>
<td>270,970</td>
<td>28.87</td>
</tr>
<tr>
<td>1998</td>
<td>1,021,444</td>
<td>742,774</td>
<td>278,670</td>
<td>27.42</td>
</tr>
<tr>
<td>1999</td>
<td>1,084,719</td>
<td>810,187</td>
<td>274,532</td>
<td>25.31</td>
</tr>
<tr>
<td>2000</td>
<td>1,103,685</td>
<td>820,958</td>
<td>282,727</td>
<td>25.62</td>
</tr>
<tr>
<td>2001</td>
<td>1,150,943</td>
<td>849,024</td>
<td>301,919</td>
<td>26.75</td>
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<tr>
<td>2002</td>
<td>1,101,685</td>
<td>820,958</td>
<td>278,727</td>
<td>25.62</td>
</tr>
</tbody>
</table>


OTHER

The Distribution Division fulfilled all the obligations from Memorandum on Electricity Distribution to Returners and Memorandum of Understanding and Cooperation for Electrification of Locations/Buildings of Returners signed by JP Elektroprivreda HZHB d.d. The Distribution Division does its best to provide good service to its customers, and to enable impartial and nondiscriminatory approach to the distribution network, taking into consideration Provisions of the European Standard EN 50160 and electricity market opening in 2015.

REALIZED INVESTMENT 1994 – 2011
After the war, distribution facilities were reconstructed and constructed to normalize the life and establish conditions for the economic growth and development. In addition to our own funds, considerable funds were granted by the USA Government, the Governments of Great Britain, Spain, Japan, Canada, Austria and Italy.

There were also loan funds provided by the World Bank (WB), and European Bank for Reconstruction and Development (EBRD).

REALIZED INVESTMENT 1994 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Own Funds</th>
<th>Loan s</th>
<th>Grants</th>
<th>Third parties (municipalities etc.)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>2,195,813.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>6,948,648.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>4,077,547.00</td>
<td>2,038,770.00</td>
<td>119,104.00</td>
<td>6,235,421.00</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>9,367,173.00</td>
<td>1,825,173.00</td>
<td>1,296,513.00</td>
<td>12,488,859.00</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>11,353,043.00</td>
<td>8,430,757.00</td>
<td>1,458,119.00</td>
<td>18,641,919.00</td>
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</tr>
<tr>
<td>1999</td>
<td>9,699,892.00</td>
<td>410,402.00</td>
<td>11,555,009.00</td>
<td>802,900.00</td>
<td>22,468,203.00</td>
</tr>
<tr>
<td>2000</td>
<td>8,972,803.00</td>
<td>955,895.00</td>
<td>9,359,407.00</td>
<td>240,373.00</td>
<td>19,528,478.00</td>
</tr>
<tr>
<td>2001</td>
<td>6,574,993.00</td>
<td>109,301.00</td>
<td>16,085,314.00</td>
<td>31,826.00</td>
<td>22,801,434.00</td>
</tr>
<tr>
<td>2002</td>
<td>4,242,765.00</td>
<td>10,669,275.00</td>
<td>64,083.00</td>
<td>14,976,123.00</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>3,742,683.00</td>
<td>2,575,148.00</td>
<td>974,838.00</td>
<td>7,292,669.00</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>5,816,042.00</td>
<td>3,849,567.00</td>
<td>428,073.00</td>
<td>10,093,682.00</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>19,931,060.00</td>
<td>1,720,494.00</td>
<td>21,651,554.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>6,202,632.00</td>
<td>4,509,230.00</td>
<td>145,000.00</td>
<td>10,856,862.00</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>10,151,476.00</td>
<td>17,039,680.00</td>
<td>57,480.00</td>
<td>27,248,636.00</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>10,339,708.00</td>
<td>15,239,228.00</td>
<td>232,243.00</td>
<td>25,811,179.00</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>8,190,774.00</td>
<td>11,141,137.00</td>
<td>94,500.00</td>
<td>19,426,411.00</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>7,580,289.00</td>
<td>19,625,281.00</td>
<td></td>
<td>27,205,570.00</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>24,598,283.00</td>
<td>1,184,190.00</td>
<td></td>
<td>25,782,473.00</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>148,241,163.00</td>
<td>87,308,334.00</td>
<td>49,294,430.00</td>
<td>7,665,546.00</td>
<td>301,653,934.00</td>
</tr>
</tbody>
</table>
The Power Supply Division was founded in 2006 as a separate division in JP Elektroprivreda HZHB d.d. Mostar. Its activities are the most exposed to the public, and its basic business principles are teamwork and impartial communication with customers. Those principles are a condition for good business results, i.e. high collection rate.

The Power Supply Division carries out the following activities:

• Power supply to tariff customers
• Data processing for power supply
• Settlement
• Billing
• Collection

On December 31, 2011 there were 373 employees who are responsible for quality supply to customers. In 2012 the Division provided all customers with a quality and reliable power supply service.

The main organizational parts of the Division are:

• Executive Director’s Office
• Customer Relations Unit
• Supply Area Unit South
• Supply Area Unit Center
• Supply Area Unit North

Supply Area Units carry out the activities through departments, services, and operating and working units. Each Supply Area Unit has the following departments:

• Billing Department
• Collection Department
• Economic Affairs Department
• Legal, Personnel and General Affairs Department

HEP BILLING SYSTEM

In the area of information technologies, the Power Supply Division follows the requirements of contemporary business running and, for billing purposes, uses the HEP Billing System and Business Reporting System – biiS2.

The HEP Billing system supports the processes of billing and collection. It was implemented in 2006 in all operating units of the Power Supply Division. It was built in three-tier architecture, and on the Oracle platform (Oracle Database Server 9 and R2 and Oracle Application Server).

The application was written in the Oracle Forms language and the problem with the production data safety was solved through the standard safety functionality of the Oracle base.

The HEP Billing is upgraded every year according to the users’ needs. This system represents the important step in
modernization and improvement of the business running in the scope of the Power Supply Division’s activities. All business processes are computerized; decentralization of the old system is avoided; better working efficiency is achieved; and billing and collection monitoring is improved.

**BUSINESS REPORTING SYSTEM – bins2**

The Business Reporting System – bins2 was implemented in early 2008, and it represents upgrading of the HEP Billing system with the reporting module. Its base is Oracle BI Standard Edition platform. Its flexibility enables fast and efficient data use while its performance contributes to cost-effectiveness and efficiency of the activities.

**RELATIONS WITH CUSTOMERS**

In line with the Power Supply Division business policy, customers are the center of attention and the whole business strategy is adjusted to them. Lately, there has been intensified and improved communication with customers by developing all types of support, primarily by improving the activities of informing customers and the quality of correspondence in writing and of electronic and telephone correspondence.

**ON-LINE SERVICE – ELECTRICITY BILL CHECKING**

Considering the customers’ needs, JP Elektroprivreda HZHB d.d. Mostar introduced in 2010 on-line service Electricity Bill Checking which offers a fast and simple approach to information.

This service is cost-free and is intended for natural persons, i.e. customers of JP Elektroprivreda HZ HB d.d. Mostar, from the consumption class – households.

The Internet approach offers the check of their electricity consumption, meter reading, payment in the previous 12 months, and debt check.

Introduction of this service was positively received, especially with customers who live abroad and now can get information faster and more easily.

**INFORMATION CENTER FOR CUSTOMERS**

Information Center for Customers has operated since July 1, 2011. It enables the contact with customers and improves relations with them through providing information in time.

The operation of this center is based on: providing precise and clear information, helping and directing customers, reacting to their needs as soon as possible, etc. All communication is registered and data on submitted and resolved customers’ requests are analyzed and processed. Via toll-free telephone number 080 801 001 customers are able to contact directly with our agents on each working day from 07:00 to 15:30, and get all necessary information and explanations. In addition, customers can also leave their messages in voice box 24/7. These messages are processed as fast as possible. Customers can also send e-mail message to the following address: opskrba@ephzhb.ba, to give their comments, suggestions, ideas or commendations, or to report unauthorized consumption.

**AVERAGE PRICE FOR CUSTOMERS AT DISTRIBUTION VOLTAGE LEVELS (pf/kWh)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average price for customers at distribution voltage levels (pf/kWh)</td>
<td>14.02</td>
<td>14.52</td>
<td>15.66</td>
<td>15.61</td>
<td>15.41</td>
<td>15.29</td>
</tr>
</tbody>
</table>
There are no data for the war period from 1991 to 1993.

### NUMBER OF CUSTOMERS BY CLASS

<table>
<thead>
<tr>
<th>Year</th>
<th>35 kV</th>
<th>10 kV</th>
<th>Households</th>
<th>Other consumption</th>
<th>Public lightning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>3</td>
<td>100</td>
<td>166,518</td>
<td>14,920</td>
<td>1,232</td>
<td>182,773</td>
</tr>
<tr>
<td>2007</td>
<td>3</td>
<td>111</td>
<td>165,777</td>
<td>14,636</td>
<td>1,233</td>
<td>181,850</td>
</tr>
<tr>
<td>2008</td>
<td>3</td>
<td>119</td>
<td>167,101</td>
<td>14,870</td>
<td>1,474</td>
<td>183,567</td>
</tr>
<tr>
<td>2009</td>
<td>3</td>
<td>125</td>
<td>168,716</td>
<td>14,847</td>
<td>1,496</td>
<td>185,195</td>
</tr>
<tr>
<td>2010</td>
<td>3</td>
<td>140</td>
<td>169,851</td>
<td>14,889</td>
<td>1,612</td>
<td>186,294</td>
</tr>
<tr>
<td>2011</td>
<td>3</td>
<td>151</td>
<td>172,156</td>
<td>14,083</td>
<td>1,649</td>
<td>187,642</td>
</tr>
<tr>
<td>2011%</td>
<td>0.00</td>
<td>0.08</td>
<td>91.21</td>
<td>7.83</td>
<td>0.88</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### NUMBER OF CUSTOMERS BY SUPPLY AREA UNIT

<table>
<thead>
<tr>
<th>Year</th>
<th>SAU South</th>
<th>SAU Center</th>
<th>SAU North</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>120,159</td>
<td>45,974</td>
<td>16,640</td>
<td>182,773</td>
</tr>
<tr>
<td>2007</td>
<td>118,406</td>
<td>46,609</td>
<td>16,835</td>
<td>181,850</td>
</tr>
<tr>
<td>2008</td>
<td>119,371</td>
<td>47,190</td>
<td>17,006</td>
<td>183,567</td>
</tr>
<tr>
<td>2009</td>
<td>120,387</td>
<td>47,542</td>
<td>17,266</td>
<td>185,195</td>
</tr>
<tr>
<td>2010</td>
<td>121,063</td>
<td>47,937</td>
<td>17,294</td>
<td>186,294</td>
</tr>
<tr>
<td>2011</td>
<td>122,010</td>
<td>48,242</td>
<td>17,390</td>
<td>187,642</td>
</tr>
<tr>
<td>2011%</td>
<td>65.02</td>
<td>25.71</td>
<td>9.27</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### IV HUMAN RESOURCES

On December 31, 2011 JP Elektroprivreda HZHB d.d. Mostar had 1,880 employees among whom more than 500 employees hold university and college degrees.

We keep on employing trainees for experience acquiring as well as awarding scholarships to university students, and educating employees through different types of training.

This way of resources management enables better harmonization of work with modern and profitable business running. The end result is successful execution of working assignments.
### EMPLOYEE AGE STRUCTURE IN 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 30</td>
<td>55</td>
<td>116</td>
<td>60</td>
<td>52</td>
<td>283</td>
<td>15</td>
</tr>
<tr>
<td>30-39</td>
<td>89</td>
<td>222</td>
<td>102</td>
<td>40</td>
<td>453</td>
<td>24</td>
</tr>
<tr>
<td>40-49</td>
<td>107</td>
<td>300</td>
<td>109</td>
<td>29</td>
<td>545</td>
<td>29</td>
</tr>
<tr>
<td>50-59</td>
<td>146</td>
<td>240</td>
<td>93</td>
<td>33</td>
<td>515</td>
<td>27</td>
</tr>
<tr>
<td>Over 60</td>
<td>40</td>
<td>31</td>
<td>9</td>
<td>2</td>
<td>86</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>440</strong></td>
<td><strong>911</strong></td>
<td><strong>373</strong></td>
<td><strong>156</strong></td>
<td><strong>1880</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### EMPLOYEE EXPERIENCE STRUCTURE IN 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 10</td>
<td>98</td>
<td>234</td>
<td>114</td>
<td>88</td>
<td>534</td>
<td>29</td>
</tr>
<tr>
<td>10-19</td>
<td>126</td>
<td>298</td>
<td>127</td>
<td>34</td>
<td>583</td>
<td>31</td>
</tr>
<tr>
<td>20-29</td>
<td>98</td>
<td>229</td>
<td>86</td>
<td>24</td>
<td>437</td>
<td>23</td>
</tr>
<tr>
<td>30-39</td>
<td>73</td>
<td>99</td>
<td>28</td>
<td>7</td>
<td>207</td>
<td>11</td>
</tr>
<tr>
<td>Over 35</td>
<td>45</td>
<td>51</td>
<td>18</td>
<td>1</td>
<td>117</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>440</strong></td>
<td><strong>911</strong></td>
<td><strong>373</strong></td>
<td><strong>156</strong></td>
<td><strong>1880</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### EMPLOYEE QUALIFICATION STRUCTURE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unskilled</td>
<td>31</td>
<td>37</td>
<td>4</td>
<td>1</td>
<td>73</td>
<td>3.9</td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>2</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>19</td>
<td>1.0</td>
</tr>
<tr>
<td>Skilled</td>
<td>122</td>
<td>242</td>
<td>170</td>
<td>10</td>
<td>570</td>
<td>30.3</td>
</tr>
<tr>
<td>Secondary school</td>
<td>76</td>
<td>267</td>
<td>52</td>
<td>1</td>
<td>394</td>
<td>21.0</td>
</tr>
<tr>
<td>Highly-skilled</td>
<td>30</td>
<td>53</td>
<td>21</td>
<td>12</td>
<td>116</td>
<td>6.2</td>
</tr>
<tr>
<td>Associate degree</td>
<td>102</td>
<td>134</td>
<td>76</td>
<td>117</td>
<td>429</td>
<td>22.8</td>
</tr>
<tr>
<td>B.Sc.</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>B.Sc.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>440</strong></td>
<td><strong>911</strong></td>
<td><strong>373</strong></td>
<td><strong>156</strong></td>
<td><strong>1880</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Below is a table giving the financial data for the period from 1994 to 2011.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total income (BAM)</th>
<th>Total expenses (BAM)</th>
<th>Gross profit (+) / loss (-) (BAM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>43,822,577</td>
<td>47,472,325</td>
<td>-5,649,748</td>
</tr>
<tr>
<td>1995</td>
<td>73,840,232</td>
<td>68,368,846</td>
<td>5,471,386</td>
</tr>
<tr>
<td>1996</td>
<td>112,015,639</td>
<td>111,319,730</td>
<td>695,909</td>
</tr>
<tr>
<td>1997</td>
<td>148,277,000</td>
<td>147,975,000</td>
<td>302,000</td>
</tr>
<tr>
<td>1998</td>
<td>129,691,000</td>
<td>123,818,000</td>
<td>5,873,000</td>
</tr>
<tr>
<td>1999</td>
<td>139,112,321</td>
<td>138,314,522</td>
<td>797,799</td>
</tr>
<tr>
<td>2000</td>
<td>145,411,621</td>
<td>144,873,886</td>
<td>537,735</td>
</tr>
<tr>
<td>2001</td>
<td>197,778,869</td>
<td>196,775,737</td>
<td>1,003,132</td>
</tr>
<tr>
<td>2002</td>
<td>171,245,078</td>
<td>170,551,115</td>
<td>693,963</td>
</tr>
<tr>
<td>2003</td>
<td>198,460,305</td>
<td>233,707,792</td>
<td>-35,247,487</td>
</tr>
<tr>
<td>2004</td>
<td>279,180,918</td>
<td>299,446,696</td>
<td>-20,265,778*</td>
</tr>
<tr>
<td>2005</td>
<td>304,906,244</td>
<td>299,690,519</td>
<td>5,215,725</td>
</tr>
<tr>
<td>2006</td>
<td>369,296,892</td>
<td>331,920,999</td>
<td>37,375,893</td>
</tr>
<tr>
<td>2007</td>
<td>370,258,137</td>
<td>369,255,918</td>
<td>1,002,219</td>
</tr>
<tr>
<td>2008</td>
<td>345,499,374</td>
<td>404,770,467</td>
<td>-59,271,093</td>
</tr>
<tr>
<td>2009</td>
<td>339,296,892</td>
<td>331,963,761</td>
<td>7,333,131</td>
</tr>
<tr>
<td>2010</td>
<td>311,864,900</td>
<td>288,520,999</td>
<td>23,343,901</td>
</tr>
<tr>
<td>2011</td>
<td>382,991,119</td>
<td>362,244,604</td>
<td>40,746,515</td>
</tr>
</tbody>
</table>

* *Gubitak nastao nakon provedene revalorizacije (31.12.2004.)*

There are no data for the war period from 1991 to 1993.

SAP SYSTEM – FMIS PROJECT

JP Elektroprivreda HZHB d.d. Mostar is the first power utility in the region that implemented the SAP system as information support to business processes.

Application of the SAP system started in 2009 after the FMIS Project was successfully implemented. In this way the main objective of introducing the ERP system was achieved: integration of procurement business processes, materials management, finances, fixed assets management, controlling etc.

The Company has been running business in the transparent system for four years (better transparency and coordination of business processes) to the satisfaction of all information users, especially auditors.

INSTALLED SAP R/3 MODULES

The central system is based on the SAP R/3 system. It includes the following SAP R/3 modules that cover specific business segments:

- **FI** – Financial Accounting: General Ledger (GL), Accounts Receivable (AR), Accounts Payable (AP), Loan Management (through AP);
- **FA** – Fixed assets
- **CO** – Controlling
- **MM** – Materials Management: Purchasing (PC), Material Requirement Planning (MRP), Inventory Management and Logistic Invoice Verification.
- **SD** – Sales and Distribution – covers only sale activities.

SAP has developed interfaces for payroll, billing and electronic data interchange (daily extracts and payment orders) through the internet banking with commercial banks.
There are no data for the war period from 1991 to 1993.

### Total Realized Investments and Assets Value from 1994 to 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Realized Investments</th>
<th>Assets Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>12,279,225</td>
<td>558,689,864</td>
</tr>
<tr>
<td>1995</td>
<td>21,372,290</td>
<td>577,714,000</td>
</tr>
<tr>
<td>1996</td>
<td>27,216,066</td>
<td>663,473,000</td>
</tr>
<tr>
<td>1997</td>
<td>70,641,365</td>
<td>704,703,000</td>
</tr>
<tr>
<td>1998</td>
<td>52,541,365</td>
<td>880,663,000</td>
</tr>
<tr>
<td>1999</td>
<td>53,290,637</td>
<td>928,669,760</td>
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<tr>
<td>2000</td>
<td>61,634,391</td>
<td>936,242,963</td>
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<tr>
<td>2001</td>
<td>40,007,103</td>
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<tr>
<td>2002</td>
<td>46,264,764</td>
<td>1,000,082,725</td>
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<tr>
<td>2003</td>
<td>67,640,871</td>
<td>973,447,718</td>
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<td>2004</td>
<td>62,215,032</td>
<td>996,202,275</td>
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<td>2005</td>
<td>45,268,048</td>
<td>1,157,268,605</td>
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<td>2006</td>
<td>40,059,630</td>
<td>1,170,161,795</td>
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<td>2007</td>
<td>63,605,180</td>
<td>1,152,160,047</td>
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<td>2008</td>
<td>72,591,576</td>
<td>1,181,281,837</td>
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<tr>
<td>2009</td>
<td>73,942,158</td>
<td>1,203,082,922</td>
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<td>2010</td>
<td>59,390,213</td>
<td>1,250,517,518</td>
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<tr>
<td>2011</td>
<td>48,099,453</td>
<td>1,294,808,706</td>
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</tbody>
</table>

There are no data for the war period from 1991 to 1993.
VI PLANNED GENERATING FACILITIES

To ensure its own development and progress, and to meet customers’ demands, JP Elektroprivreda HZ HB d.d. Mostar works on the projects of renewable energy sources: wind, water and fossil fuels.

There are underway preparation activities on solar energy use and possible gasification in the areas of responsibility of the Company.


<table>
<thead>
<tr>
<th>Name</th>
<th>Installed capacity</th>
<th>Output</th>
<th>Construction duration</th>
<th>Investment</th>
<th>Construction workers</th>
<th>New workplaces</th>
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</thead>
<tbody>
<tr>
<td>THERMAL POWER PLANTS</td>
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<tr>
<td>Mine/TPP Krunovica</td>
<td>550.00</td>
<td>3,000.00</td>
<td>year</td>
<td>1,100.00</td>
<td>6,000</td>
<td>790</td>
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<td>HYDRO POWER PLANTS</td>
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<tr>
<td>PSPP vitbo</td>
<td>162.00</td>
<td>445.70</td>
<td></td>
<td>203.76</td>
<td>2,950</td>
<td>81</td>
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<tr>
<td>PSPP Katak</td>
<td>64.00</td>
<td>242.96</td>
<td>4.5</td>
<td>89.11</td>
<td>400</td>
<td>25</td>
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<tr>
<td>HPP Hrvat Vukovar</td>
<td>52.00</td>
<td>73.13</td>
<td>3</td>
<td>58.42</td>
<td>250</td>
<td>25</td>
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<tr>
<td>HPP Ogulin</td>
<td>12.00</td>
<td>52.00</td>
<td>2</td>
<td>29.50</td>
<td>300</td>
<td>10</td>
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<tr>
<td>HPP Vrutca Iviško</td>
<td>11.60</td>
<td>33.19</td>
<td>2</td>
<td>12.87</td>
<td>350</td>
<td>7</td>
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<tr>
<td>HPP Velika Kostajnica</td>
<td>11.20</td>
<td>22.54</td>
<td>2</td>
<td>6.93</td>
<td>300</td>
<td>7</td>
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<tr>
<td>WIND FARMS</td>
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<td></td>
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<tr>
<td>WF Borovac Šćepančić</td>
<td>200.00</td>
<td>626.11</td>
<td></td>
<td>316.72</td>
<td>1,270</td>
<td>62</td>
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<tr>
<td>WF Bosna Gracac</td>
<td>52.00</td>
<td>149.62</td>
<td>3</td>
<td>78.00</td>
<td>350</td>
<td>16</td>
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<tr>
<td>WF Mesavica</td>
<td>44 – 66</td>
<td>123.53 – 146</td>
<td>3</td>
<td>78.00</td>
<td>300</td>
<td>14</td>
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<tr>
<td>WF Poljica</td>
<td>32.00</td>
<td>89.36</td>
<td>3</td>
<td>52.12</td>
<td>220</td>
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<tr>
<td>WF Potkarišće</td>
<td>72.00</td>
<td>258.60</td>
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<td>108.00</td>
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<tr>
<td>Total</td>
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<td>4,071.81</td>
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<td>1,020.48</td>
<td>9,320</td>
<td>933</td>
</tr>
</tbody>
</table>

Small hydro power plants (SHPP) not included

There are no data for the war period from 1991 to 1993

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</thead>
<tbody>
<tr>
<td>COLLECTOR RATE (%)</td>
<td>38.60</td>
<td>47.37</td>
<td>69.10</td>
<td>72.00</td>
<td>68.6</td>
<td>83.99</td>
<td>90.20</td>
<td>63.55</td>
<td>90.18</td>
<td>94.62</td>
<td>95.09</td>
<td>96.40</td>
<td>97.34</td>
<td>99.95</td>
<td>97.83</td>
<td>100.66</td>
<td>96.83</td>
<td>102.88</td>
</tr>
</tbody>
</table>

There are no data for the war period from 1991 to 1993

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE ELECTRICITY PRICE FOR TOTAL CONSUMPTION (PF/KWh)</td>
<td>5.80</td>
<td>7.50</td>
<td>10.55</td>
<td>10.95</td>
<td>7.94</td>
<td>7.59</td>
<td>7.39</td>
<td>10.30</td>
<td>8.29</td>
<td>10.20</td>
<td>8.22</td>
<td>9.00</td>
<td>10.91</td>
<td>13.12</td>
<td>12.23</td>
<td>10.65</td>
<td>11.93</td>
<td></td>
</tr>
</tbody>
</table>

There are no data for the war period from 1991 to 1993
WIND ENERGY

WF MESHOVINA UNDER CONSTRUCTION
The wind farm Mesihovina, near Tomislavgrad, as the first wind farm in BiH, will have 22 wind turbines with the installed capacity from 2 to 3 MW each and total installed capacity from 44 to 66 MW, depending on the selected wind turbine type and its capacity. The expected annual output shall be from 128 to 146 GWh.

The investment is estimated at EUR 78 mil. and the financial funds are provided by the Loan and Project Agreement and the Financing Agreement signed between the German Development Bank KfW, Bosnia and Herzegovina, the Federation of BIH, and JP Elektroprivreda HZ HB d.d. Mostar. The project is financed out of a EUR 71 million loan and a EURO 1 million grant (for consulting services), and EUR 6 million own funds.

After the international bidding procedure for the Consultant there was selected the German company Fichtner GmbH & CO KG among 13 European bidders.

Selection of the equipment supplier is underway, and the commissioning is planned for 2014.

WF VELIKA VLJANA
The installed wind farm capacity shall be 12 MW, and the annual output 89.36 GWh. The investment is estimated at EUR 52.72 mil.

WF POKLEČANI
The installed wind farm capacity shall be 72 MW, and the annual output 258.6 GWh. The investment is estimated at EUR 110.6 mil.

According to the 2010 Business Plan and Decisions of the FBiH Government there have been intensified activities on the WF Poklečani project implementation.

WF BOROVA GLAVA
The installed wind farm capacity shall be 52 MW, and the annual output 149.62 GWh. The investment is estimated at EUR 78 mil.

The WF Borova Glava occupies the area of two municipalities, Livno (16 wind turbines) and Tomislavgrad (10 wind turbines). It is settled mostly on the private land. The locations of 26 wind turbines of the WF Borova Glava are planned by the Feasibility Study prepared by NYPSA Madrid, 2006.
HYDRO ENERGY

PSPP VRILIO
The pumped storage power plant Vrilo is a development project of Tomislavgrad Municipality. It shall collect the Duvanjsko Field i.e. Šuica river inflow water and in the period of reduced inflow in Duvanjsko Field it shall pump water from Buško Blato in the upper reservoir to use it when there is a shortage electricity in the system.

This power plant shall provide the power system with additional output of peak energy and shall contribute to gas pollution reduction.

The plant shall use the gross head of around 155 m from Duvanjsko Field to Buško Lake.

The installed output shall be 64 MW (two turbine-pumps with the capacity of 32 MW each) and the installed discharge 2x25 m³/s.

The total annual output depends on the possible hours of pump operation during the day. In 6 hours it would generate around 170.58 GWh, and in 12 hours around 242.96 GWh.

The total investment is estimated at around EUR 89.11 mil.

The German Development Bank (KfW) provided a EUR 70 mil loan for its construction.

SHPP MOKRONOGE
The small hydro power plant Mokronoge is located in the canyon part of Tomislavgrad and it shall collect the Četina basin, i.e. Šuica river inflow water.

According to the Pre-Feasibility Study prepared by JP Elektroprivreda HZ HB d.d. Mostar in 2010, the profitability of its construction and its multipurpose contribution were confirmed.

HPP KABLIĆ
The pumped storage power plant Kablić is located in Glamočko Field and Livanjsko Field. The planned installed capacity is 56 (2x28) MW and annual output 73.44 GWh. The investment is estimated at EUR 58.42 mil.

HPP UGAR UŠĆE
The HPP Ugar is located 1.9 upstream of the place where the Ugar river flows into the Vrbas river. It is a storage-run-of-river power plant, with the installed capacity of 11.6 (2x5.8) MW and annual output of 33.188 GWh. The investment is estimated at EUR 12.87 mil. The Pre-Feasibility Study was prepared by Elektroprojekt d.d. Zagreb in 2007.

HPP IVIK
The HPP Ivik is located in the area of Dobrljević Municipality and it collects the Ugar river inflow water. It is 13.3 km upstream of the place where the Ugar river flows into the Vrbas river. This is a storage-run-of-river power plant, with the installed capacity of 11.2 MW and annual output of 22.08 GWh. The investment is estimated at EUR 6.75 mil. The Pre-Feasibility Study was prepared by Elektroprojekt d.d. Zagreb in 2007.

HPP VRLETNA KOSA (MILAŠEVIĆ)
The HPP Vrletna Kosa is located 9.2 km upstream of the place where the Ugar river flows into the Vrbas river. It is a storage-run-of-river power plant, with the installed capacity of 11.2 (2x5.6) MW and annual output of 22.538 GWh.

The investment is estimated at EUR 6.93 mil. The Pre-Feasibility Study was prepared by Elektroprojekt d.d. Zagreb in 2007.

HPP HAN SKELA (BRAVNICE)
The HPP Han Skela is located in the area of Jajce Municipality and collects the Vrbas river inflow water. It is a storage-run-of-river power plant with the installed capacity of 12 MW and expected annual output of around 52 GWh. The investment is estimated at BAM 57.70 mil. The Pre-Feasibility Study was prepared by Elektroprojekt d.d. Zagreb in 2007.

The facilities of JP Elektroprivreda HZ HB d.d. Mostar on the Vrbas river (HPP Han Skela, HPP Ivik, HPP Vrletna Kosa, HPP Ugar Ušće) are of public interest and shall be additionally estimated in the Study of World Bank: Water Resources Study for the Vrbas River that is expected in February 2013.
FOSSIL ENERGY

MINE AND TPP KONGORA

The Integrated Lignite Mining and Power Project Kongora is located in Duvanjsko Field near Tomislavgrad. The installed capacity is 2x275 MW and total annual output 3,000.00 GWh. The investment is estimated at EUR 1,100.00 mil.

The Pre-Feasibility Study was prepared by Rheinbraun Engineering und Wasser GmbH Köln from Germany in 1998. In the period from 2006 to 2009, JP Elektroprivreda HZ HB d. d. Mostar performed a detailed field research to precisely determine the coal quantity and quality. Furthermore, there were prepared studies necessary for recognition of mineable reserves in the Kongora deposit and started other research activities for the project implementation.

The Decision on Recognition of Mineable Reserves in the Kongora Deposit was obtained.

As it is necessary to provide considerable funds for the next research phases, preparation of designs and studies for this project, it was decided that, in the next project phase, the Strategic Environmental Impact Assessment should be prepared with a multicriteria analysis taking into consideration environmental, technological, social, energy and financial aspects of possible implementation.

The Strategic Environmental Impact Assessment for the project was prepared by the Consortium Ecoplan Mostar – Ekonerg Zagreb – Tuzla Mining Institute.