

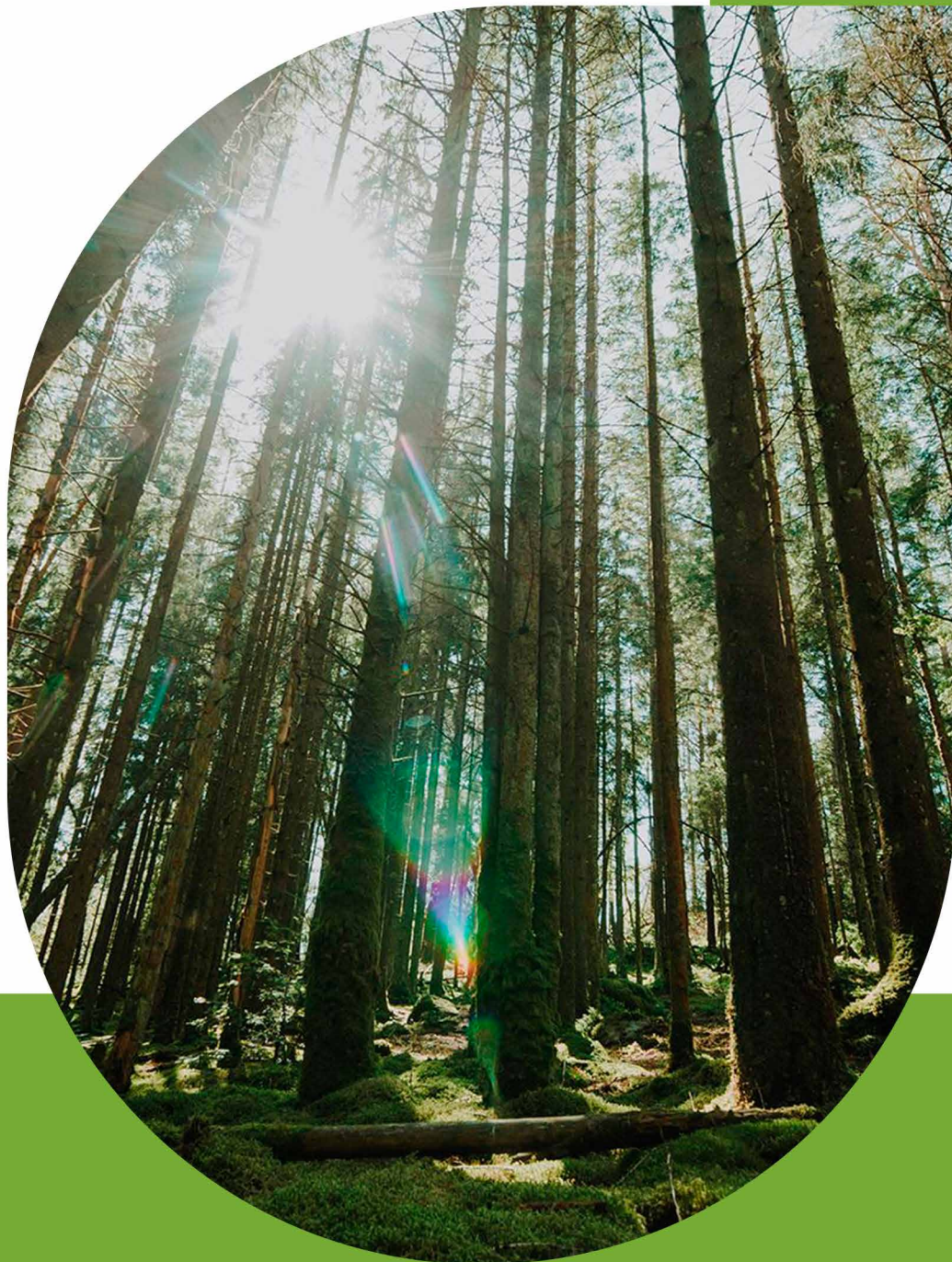
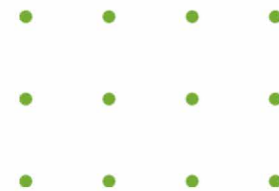


Annual Report of  
Environmental Protection for  
2022



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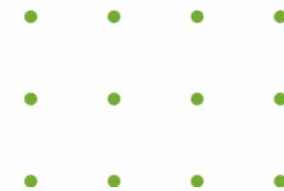
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# 1. INTRODUCTION

*The Annual Report of Environmental Protection for 2022 of JP Elektroprivreda BiH d.d. Sarajevo was made in accordance with the Rulebook on Environmental Protection of JP Elektroprivreda BiH d.d. Sarajevo.*

*“ The Report was prepared by the Environmental Management Department on the basis of the submitted individual reports of the Company’s subsidiaries as well as the reports of organizational units within the Company’s Directorate. We hereby thank them for their participation in the preparation of the Report. ”*



## ***2. POWER AND THERMAL ENERGY GENERATION***

“

*JP Elektroprivreda BiH d.d. Sarajevo (hereinafter: JP EPBiH), in 2022, in its production facilities achieved total electricity production amounting to 5,849.1 GWh.*

”

## 2. PROIZVODNJA ELEKTRIČNE I TOPLLOTNE ENERGIJE

*JP Elektroprivreda BiH d.d. Sarajevo (hereinafter: JP EPBiH), in 2022, in its production facilities achieved total electricity production amounting to 5,849.1 GWh. (Diagram 1. Electricity produced in GWh)*

The “Tuzla” and “Kakanj” thermal power plants produced a total of **4,544.0 GWh**. Of these, **2,620.5 GWh** was produced in the Tuzla Thermal Power Plant (hereinafter: TPP “Tuzla”), and **1,923.5 GWh** was produced in the Kakanj Thermal Power Plant (hereinafter: TPP “Kakanj”).

The hydro power plants, managed by JP EPBiH, produced a total of **1,183.9 GWh**. The hydro power plants on the river Neretva (HPP “Jablanica”, HPP “Grabovica” and HPP “Salakovac”) produced a total of **1,125.6 GWh**. Small hydro power plants produced **58,3 GWh**.

The “Podveležje” Wind Farm produced **121,2 GWh**.

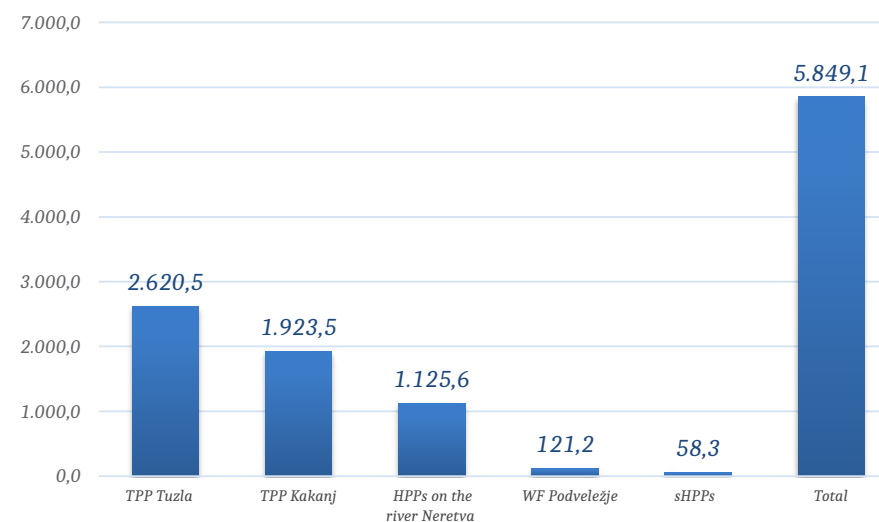


Diagram 1. Electricity produced (GWh)

*A total of 5,057,333.0 t of coal was consumed in thermal power plants for electricity, thermal energy and process steam production. 4,811,843.0 t was consumed for electricity production, while 182.228.0 t was consumed for heat and process steam production. Out of the total quantities, 3,106,627.0 t (61.99%) was consumed by TPP “Tuzla”, and 1,950,706.0 t (38.01%) by TPP “Kakanj”. The calorific value of coal consumed was a total of 11,620.0 (kJ/kg). At the same time, the calorific value of coal used for the needs of operation of TPP “Tuzla” was 11,059.0 (kJ/kg), and for TPP “Kakanj” 12,470.0 (kJ/kg). The total specific heat consumption in thermal power plants was 12,286.0 (kJ/kWh), with the specific consumption in TPP “Tuzla” of 12,202.0 (kJ/ kWh), while in TPP “Kakanj” it was 12,400.0 kJ/kWh. A total of 2,118.0 t of crude oil and 1,569.2 t of fuel oil were used for ignition and supporting fire in thermal power plants, in boilers.*

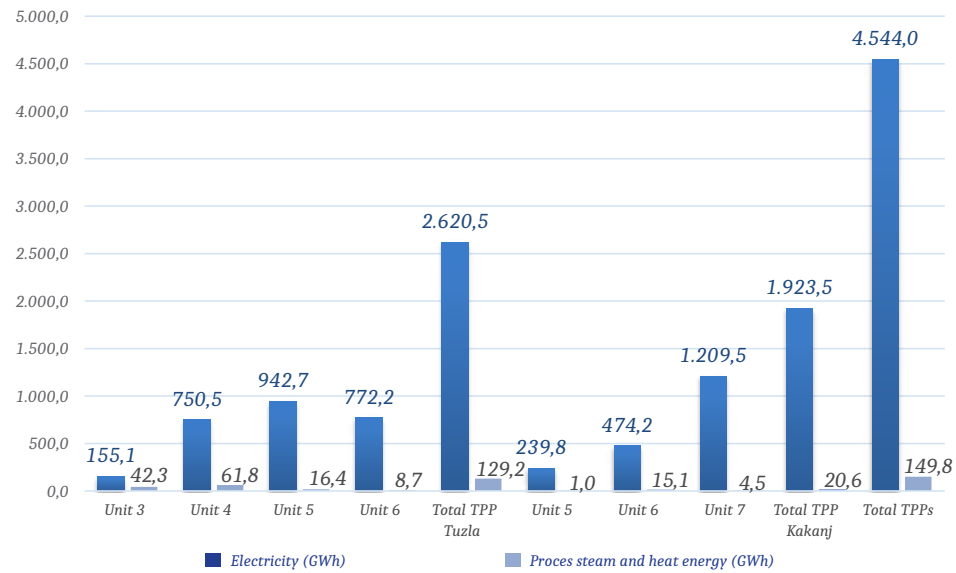


Diagram 2. Electricity, process steam and heat energy produced by Units, in TPP "Tuzla" and TPP "Kakanj" (GWh)

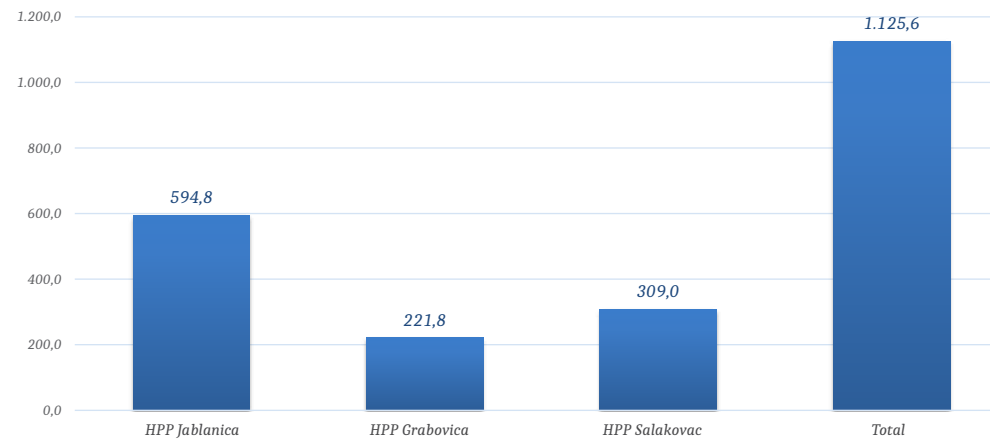
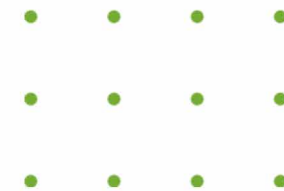


Diagram 3. Electricity produced in HPPs on the r. Neretva (GWh)



### ***3. ENVIRONMENTAL IMPACT INDICATORS AND ENVIRONMENTAL PROTECTION MEASURES***

“

*JP EPBiH, as part of its activities, continually monitors and analyses the impact of its business processes on the environment, in accordance with the current legislation in the field of environmental protection.*

”

### 3. POKAZATELJI UTJECAJA NA OKOLIŠ I MJERE ZAŠTITE OKOLIŠA

#### Air Pollutant Emissions from Thermal Power Plants

Air pollutant emissions – sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), solid particles are continuously monitored in thermal power plants.

Carbon dioxide emissions (CO<sub>2</sub>) are also continuously monitored.

Total annual air pollutant emissions and CO<sub>2</sub> emissions are given in Table 1.

Table 1 Air pollutant emissions and CO<sub>2</sub> emissions from TPP “Tuzla” and TPP “Kakanj”

Power plant	NO <sub>x</sub>	SO <sub>2</sub>	Solid particles	CO <sub>2</sub>
	t/yr	t/yr	t/yr	t/yr
TPP “Tuzla”	3.691,0	39.237,0	568,0	2.077.896,0
TPP “Kakanj”	5.385,0	58.981,0	49,0	1.723.467,0
<b>Total</b>	<b>9.076,0</b>	<b>98.218,0</b>	<b>617,0</b>	<b>3.801.363,0</b>

#### Consumption of Water and Water Emissions in Thermal Power Plants

Data on the amount of water consumed for generation of electricity, thermal power and process steam in thermal power facilities, as well as data on the total load of pollution of wastewater expressed in population equivalent (PE) are given in Table 2.

Table 2 Balance of water used and discharged for generation of electricity, thermal power and process steam in TPP “Tuzla” and TPP “Kakanj”

Power plant	Used water	Discharged water	Population equivalent (EBS)
	m <sup>3</sup>	m <sup>3</sup>	
TPP “Tuzla”	10.585.939,0	1.233.732,0	179.926
TPP “Kakanj”	9.790.800,0	3.913.144,0	25.959

#### TPP „TUZLA“

##### Activities in the field of air protection National Emission Reduction Plan in BiH

According to the National Emission Reduction Plan of BiH (hereinafter referred to as NERP BiH), units 3 and 4 of TPP “Tuzla” are planned to work until 31 of December 2023 or a maximum of 20,000 hours of operation from 1<sup>st</sup> of January 2018.

As the Investment decision for desulphurisation was made only for Unit 6 and the Preliminary Design is being developed, the status of Unit 5 remained unresolved. units 3 and 4 achieved the number of hours of operation shown in Table 3:

Table 3 – Data on hours of operation (h) and hours remaining (h) for units 3 and 4 according to NERP

	Unit 3	Unit 4
Hours of operation of the Unit	2827	5043
Hours remaining	2950	-3892

On 8 of April 2022, the Government of the FBiH (Official Gazette of the FBiH, No: 27/22), with its Decree declaring the conclusion on taking note of the information on the analysis of the effect of the implementation of the decision of the Government of the FBiH on limiting the increase in electricity supply prices, with item 3 of the conclusion, approved the continuation of the operation of Unit 4 after 2023, i.e. after determined 20,000 hours counting from 1st of January 2018, provided that by the end of 2027, if it is desired that Unit 4 remains in operation, this Unit must be adapted to the European directives on the reduction of SO<sub>2</sub>, NO<sub>x</sub> and solid particles emissions.



### **Measurement of the content of particulate matter at the landfills of combustion products Divkovići I Jezero**

In accordance with the renewed Environmental Permit (UPI number 05/2-02-19-5-242/21 MK), TPP "Tuzla" has measured the content of PM10 dust particulate matter at the landfills of process products in the dry period.

The company named INSPEKT RGH d.o.o. Sarajevo measured the concentration of floating particulate matter at the Divkovići landfill and Depot 1 DU, using a mobile metering station equipped with an analyser to measure immission concentrations of PM10 and meteorological data.

Based on the obtained results, it was established that the concentrations of particulate matter do not exceed the limit values at any of the examined locations, as prescribed by the Rulebook on the Manner of Monitoring Air Quality ("Official Gazette of the FBiH", Nos. 01/12, 3/21).

### **Activities in the field of water protection**

"The Sava River Basin Agency" issued to TPP "Tuzla" a new Water Permit No. UP-1/21-3-40-284-5/22; of 30 of September 2022, valid for 5 years.

Measures and activities, which are ordered by the Water Permit, are carried out according to the Plan of Activities prepared in accordance with the same. The testing of the pollution load was carried out

in September 2022 in accordance with the legally prescribed methodology. The established value of the wastewater pollution load is 179,926 ES.

The Tuzla Canton Ministry of Agriculture, Forestry and Water Management issued to TPP "Tuzla" a Water Permit No. 04/1-11-21-22075/22, of 17 of November 2022, for the discharge of sanitary and faecal wastewater.

### **Activities in the field of waste management**

Pursuant to the Law on Waste Management of the FBiH, TPP "Tuzla" is obliged to carry out selective waste collection.

Contracts on the sale of secondary raw materials were concluded with the company CIBOS d.o.o. Ilijaš, and with the company CIAK d.o.o. Grude contracts on the takeover of hazardous waste were concluded.

Contract on disposal of T1 transformers was concluded with Modernizacija d.o.o. Gradačac, in cooperation with Kemeko-BiH Lukavac.

Contract on disposal of technological sludges was concluded with Delta Petrol d.o.o. Kakanj.

Contract on sale of slag and ash from the landfill of process products was concluded with the company Lafat Komerc d.o.o. Kalesija. The subject of the contract was the sale of slag and ash in the amount of approximately 9,000 t.

### **Radioactivity monitoring indicators**

In accordance with the "Rulebook on Maximum Limits of Radioactive Contamination of the Environment and Performing Decontamination" (SFRY Official Gazette, 8/87, RBiH Official Gazette, 2/92), annual monitoring of radioactivity levels in the generation process and the nearby surroundings of TPP "Tuzla" was realized.

The Faculty of Veterinary Medicine of Sarajevo carried out:

- measurement of radioactivity of slag, ash and coal,
- measurement of radioactivity in the production process.

**The results of the measurements performed showed that the level of natural and artificial radionuclides in the samples does not exceed the established maximum permitted values.**

### **TPP „KAKANJ“**

#### **Activities in the field of air protection National Emission Reduction Plan in BiH**

According to the NERP of BiH, Unit 5 in TPP "Kakanj" is planned to work until 31 of December 2023 or a maximum of 20,000 hours of operation from 1st of January 2018.

As of 31 of July 2023, Unit 5 achieved the number of hours of operation of 24,048 hours.

On 8 of April 2022, the Government of the FBiH (Official Gazette of the FBiH, No: 27/22), with its Decree declaring the conclusion on taking note of the information on the analysis of the effect of the implementation of the decision of the Government of the FBiH on limiting the increase in electricity supply prices, with item 3 of the conclusion, approved the continuation of the operation of Unit 5 after 2023, i.e. after determined 20,000 hours counting from 1<sup>st</sup> of January 2018, provided that by the end of 2027, if it is desired that this Unit remains in operation, it must be adapted to the European Directives on the reduction of SO<sub>2</sub>, NO<sub>x</sub> and solid particles emissions.

### Activities in the field of water protection

3,984,929.0 m<sup>3</sup> of wastewater was treated at wastewater treatment plants in TPP "Kakanj".  
19,448.0 m<sup>3</sup> wastewater was treated at the sanitary-faecal wastewater treatment plant. In the process of decarbonization, 21,176.0 m<sup>3</sup> of waste sludge was generated. In the process of wastewater treatment at the wastewater treatment plant (WWT-coagulator), 2,351.0 m<sup>3</sup> of sludge was generated (the amount of 15% of sludge discharged, deposited in precipitators at the Turbići landfill is 10,915.0 m<sup>3</sup>).

### Activities in the field of waste management

In accordance with legal requirements, i.e., in accordance with the documents of the Environmental

Management System (Standard BAS EN ISO 14001: 2017 - Environmental Management Systems), and in accordance with the Waste Management Plan of TPP "Kakanj", continuous monitoring of waste management was performed at the location of all plants and facilities of TPP "Kakanj".

Based on the conducted monitoring, it was established that the waste is managed in accordance with the Waste Management Plan.

Contract on hazardous waste disposal was concluded with Delta Petrol d.o.o. Kakanj.

With the company ALBA d.o.o. Zenica, a contract was concluded for the purchase of paper and plastic.

Under the current contract, secondary raw materials are sold to the company CIBOS d.o.o. Ilijaš.

Municipal waste is taken over by J.K.P. Vodokom Kakanj.

According to the valid contract, the cleaning, removal, depositing and disposal of sludge from the HPV plant is taken over by Delta Petrol d.o.o. Kakanj.

The sale of slag and ash is carried out continuously, and the largest quantities are taken over by the Kakanj Cement Factory, while in smaller quantities it is also taken over by smaller private companies.

### Radioactivity monitoring indicators

In accordance with the "Rulebook on Maximum Limits

of Radioactive Contamination of the Environment and Performing Decontamination" (SFRY Official Gazette, 8/87, RBiH Official Gazette, 2/92), annual monitoring of radioactivity levels in the generation process and the nearby surroundings of TPP "Kakanj" was realized.

The Faculty of Veterinary Medicine of Sarajevo carried out:

- measurement of radioactivity of slag, ash and coal,
- measurement of radioactivity in the production process.

**The results of the measurements performed showed that the level of natural and artificial radionuclides in the samples does not exceed the established maximum permitted values.**

## HPPS ON THE RIVER NERETVA

### Activities in the field of air protection

Regular annual testing of the emission of pollutants into the air from the flue ducts of the boiler plant was carried out in the manner prescribed by the standard, The Report on Air Pollutant Emissions Measurement (number: 394/22 of 27 October 2022) was prepared by "Inspekt-RGH" d.o.o. Sarajevo and according to the applicable regulations, all measured indicators meet the criteria for environmentally friendly operation or environmental safety (in accordance with the Regulation on Limit Values of Air Emissions from

Combustion Plants, "Official Gazette of the FBiH" No. 3/13).

### **Activities in the field of water protection** **HPP "Jablanica"**

For the acceptance and treatment of wastewater from the sanitary blocks of the HPP "Jablanica" plant, a standard biological device for wastewater treatment (type SBR\_REG\_12 with capacity of 12 ES) has been installed on the plateau of the machine house.

After treatment, the wastewater is discharged into the river Dobrinja, which flows into the river Neretva, using a mechanical-biological process.

Sampling of wastewater was performed twice at the discharge site (April and October). According to Article 22, paragraph 1(b) of the Regulation on Conditions for Discharging Waste Water into the Environment and Public Sewerage Systems (Official Gazette of the FBiH, Nos. 26/20; 96/20), the measured values for the parameters of COD, BOD5, ammonia, and total nitrogen and total phosphorus are in accordance with the permitted conditions of discharge into the recipient (the river Neretva).

### **HPP „Grabovica“**

For acceptance and treatment of wastewater from sanitary rooms and coffee kitchen of HPP "Grabovica" plant, two standard biological wastewater treatment plants were installed (SBR\_REG\_12 with capacity of 12 ES installed on the left bank, and SBR\_REG\_08 with

capacity of 8 ES installed on the right bank of the river Neretva).

After treatment, the wastewater is discharged directly into the river Neretva, using a mechanical-biological process.

Sampling of wastewater from the HPP "Grabovica" was performed twice at the discharge site (April and October 2022).

According to Article 22, paragraph 1(b) of the Regulation, the measured values are in accordance with the permitted conditions of discharge into the recipient (the river Neretva River), i.e., satisfying.

### **HPP „Salakovac“**

For the acceptance and treatment of wastewater from the HPP "Salakovac", a standard biological wastewater treatment plant (type SBR\_REG\_20 with capacity of 20 ES) was built, which was placed on a free surface in front of the machine room (dam) on the left bank of the river Neretva.

After treatment, the wastewater is discharged directly into the river Neretva, using a mechanical-biological process. Sampling of wastewater from the HPP Salakovac was performed twice at the discharge site (April and October 2022).

According to the applicable legislation, the parameters measured for the criterion of wastewater discharge

into surface waters are within the allowed limit values.

### **Activities in the field of waste management**

In accordance with the waste management plans for the HPP "Jablanica", HPP "Grabovica" and HPP "Salakovac", all types of waste generated are collected, selected and temporarily deposited at the locations of the HPP plant on the river Neretva.

Contract for the purchase of secondary raw materials was concluded with MC Company Mostar.

Contract for disposal of waste oils was concluded with the company Valbih Konjic, while the contract for disposal of hazardous waste was concluded with the company Kemeko Lukavac.

## **„ELEKTRODISTRIBUCIJA“ SARAJEVO**

### **Activities in the field of water protection**

Based on the concession agreement for SHPP "Osanica 1", concluded with the Government of the Bosnian-Podrinje Canton Goražde, an annual fee of 8% of the total revenue from electricity production is paid. Special water fee (PVN), fee from the income generated by the use of the Bogatići hydro-accumulation facility and general water fee (OVN) are paid on a regular basis.

### **Activities in the field of waste management**

The project of construction of the Vitkovići Temporary Waste Storage Warehouse was completed with the obtaining of the Decision on the Use Permit (number 04-4-19-2-2352/22) issued by the City of Gorazde. By obtaining the Decision, all activities on obtaining the necessary permits were completed and the Warehouse was put into operation.

For the Azići Waste Temporary Storage Warehouse, the competent Ministry is continuously reported on the fulfilment of the conditions from the Waste Management Permit.

Contract under the Framework Agreement for hazardous waste disposal service was concluded with the company Kemokop d.o.o. Tuzla for a period of twenty-four (24) months.

In December 2022, a public call was announced for bids for the sale of secondary raw materials and waste materials collected in the Public Company Elektroprivreda Bosne i Hercegovine d.d.-Sarajevo, Subsidiary "Elektrodistribucija", Sarajevo, since the previous contract concluded with Trgosirovina d.o.o. Sarajevo was valid until 15 December 2022. The contract for the sale of waste collected in the Public Company Elektroprivreda Bosne i Hercegovine d.d.-Sarajevo, Subsidiary "Elektrodistribucija", Sarajevo, concluded with the company Valbih d.o.o. Konjic is valid until 12 April 2023.

The Subsidiary handed over the discarded electrical and electronic equipment for processing and disposal to the operator of the waste electrical and electronic equipment management system, the Company ZEOS eko-sistem d.o.o. Sarajevo. The collector authorized by the system operator was Kemeko-BH d.o.o. Lukavac.

The first entry of data on waste generated in the Subsidiary, collected in 2021, within the legally defined deadline, was made in the application Waste Management Information System which is put in operation and managed by the Environmental Protection Fund of the Federation of BiH.

The implementation of the UNDP project "Environmentally Sound Management of Persistent Organic Pollutants (POPs) in Industrial and Hazardous Waste Sectors in Bosnia and Herzegovina" continued in 2022. The project is implemented by the UNDP Office in Bosnia and Herzegovina and funded by the Government of Sweden. Within the aforementioned project activities, the Subsidiary reported dismantled capacitors suspected of containing PCBs in order to dispose of them in an environmentally acceptable manner. In December, an additional visit was made to the locations reported during the inventory of POPs substances. The report of analysis carried out in December showed the presence of PCBs in two transformers as well. These transformers are out of operation and temporarily placed in the Azići Waste Temporary Storage Warehouse in an environmentally acceptable manner. An inquiry was sent to the UNDP Office in BiH whether these transformers can also be covered by the said

UNDP project and a response is awaited.

The procedure for the procurement of environmental protection products (absorbents) was carried out.

At SHPP "Osanica 1" regular cleaning of the bed of the river Osanica and maintaining of water intake were performed. Approximately 50 kg of floating waste was collected and disposed of in an appropriate manner. About 180 m<sup>3</sup> of the alluvial deposit was collected and disposed of.

### **„ELEKTRODISTRIBUCIJA“ TUZLA**

#### **Activities in the field of water protection**

The water quality was tested at the outlet of the two separators in the business circle at the location of Mitra Trifunovića Uče, Tuzla (twice a year). All measured parameters are within the permitted limit values.

#### **Activities in the field of waste management**

The service of hazardous waste disposal and sale of secondary raw materials and waste materials is continuously contracted.

## **„ELEKTRODISTRIBUCIJA“ ZENICA**

### **Activities in the field of waste management**

Electrical and electronic waste was handed over to the operator of the electrical and electronic waste collection system (C.I.B.O.S. d.o.o. Sarajevo, Zenica Subsidiary), with the issuance of the Follow-Up Sheet for Electrical and Electronic Waste.

Contract for sale of secondary raw materials and waste materials containing hazardous substances collected in the Subsidiary was concluded with the company VALBIH d.o.o. Konjic.

Non-hazardous waste (waste not specified elsewhere, construction waste) is temporarily stored in the Central Warehouse Zenica, Central Warehouse Travnik, Warehouse Bugojno, Warehouse Maglaj, Warehouse Breza, Warehouse Visoko, Warehouse Zavidovići, Warehouse Dobož, Warehouse Olovo and Warehouse Tešanj.

The secondary raw materials and waste materials collected in the Subsidiary were sold to the company VALBIH d.o.o. Konjic.

Contract for the procurement of environmental protection products (absorbents) was signed with CETEOR d.o.o. Sarajevo for the needs of the Subsidiaries: ED Bihać, ED Mostar, ED Sarajevo and ED Zenica, and the implementation was carried over to 2023.

Hazardous waste was handed over for final disposal to the contracted authorized operators, namely C.I.B.O.S. d.o.o. Sarajevo, Subsidiary Zenica, and VALBIH d.o.o. Konjic.

## **„ELEKTRODISTRIBUCIJA“ BIHAĆ**

### **Activities in the field of water protection**

During 2022, a monthly Report on the production of electricity in the hydroelectric power plant was regularly submitted, which refers to the production of electricity and water consumption, to the Sava River Basin Agency.

There is no wastewater.

The balance of cooling water taken from the river Una and treated through the filter system 800/50 mic., and used for cooling the bearing system of the unit, is estimated at about 550 thousand m<sup>3</sup>.

### **Activities in the field of waste management**

Activities on the construction of a temporary waste disposal warehouse continued in 2022. There has been a change in the previously selected location (B. Petrovac) for the construction of the warehouse, and terms of reference were prepared for the development of the Main Design for the construction of the temporary waste disposal warehouse at the location of the Central Warehouse of the Subsidiary

“Elektrodistribucija”, Bihać; The procurement procedure for the service of preparation of project documentation was initiated, and the Preliminary Design was received.

The secondary raw materials and waste materials were sold to the company Trgosirovina d.o.o. Sarajevo.

The Subsidiary initiated the procurement procedure for the service of hazardous waste disposal, however, due to the minimum amount of waste, no bids were received.

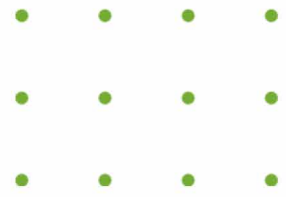
The centralized procedure for procurement of agents for environmental protection (absorbents) was carried out, with the aim of environmentally sound handling of mineral oils and readiness to react in case of incident situations.

## **„ELEKTRODISTRIBUCIJA“ MOSTAR**

### **Activities in the field of waste management**

Electrical and electronic waste was handed over to C.I.B.O.S. d.o.o. Sarajevo, with the issuance of the Follow-Up Sheet for Electrical and Electronic Waste.

The secondary raw materials and waste materials collected in the Subsidiary were sold to the companies: Trgosirovina D.D Sarajevo, Eko servis d.o.o. Mostar, and C.I.B.O.S d.o.o. Sarajevo.



## ***4. FISH STOCKING***

## HPPs on the Neretva River

The EPBiH is trying to fulfil its obligation of restocking, i.e., procuring fish/fish fingerlings through public procurement, which is only partially successful. However, the tenderer's complaints of the tender documentation, complaints of the decisions on the selection of tenderers, as well as the initiation of administrative disputes against the acts of the Procurement Review Board, and in particular the lack of certain types of fish/fingerlings on the market, lead to the fact that the procurement of fish/fingerlings cannot be realized in order for the user of the fishing right to fulfil his legal obligation, i.e., to provide fish / fingerlings for restocking in a specific period of time. All of the above results in lawsuits for compensation for damage due to non-executed restocking and lost yield, submitted by fishing associations as beneficiaries of the fishing right, and the outcome of court proceedings according to the current practice of the courts is not favourable for the EPBiH.

Due to the aforementioned, in order to avoid filing lawsuits by fishing associations that, in addition to the amount for compensation for damages due to non-stocking, also claim default interest and lost yield/breeding, as well as the costs of litigation, in accordance with the actions of JP Elektroprivreda BiH d.d. - Sarajevo, based on the subject issues in previous years, for outstanding obligation of restocking in 2022, all fishing associations were offered proposals for the Agreement on the Regulation of Outstanding Obligations referred to in Article 35 of the Law on Freshwater Fishery, and all associations responded positively to the submitted proposals, i.e., consent was obtained to the proposals of the agreement made by JP Elektroprivreda BiH d.d. - Sarajevo.

It should be noted that partial restocking with fish / fingerlings procured through public procurement was also carried out, and that the proposals for agreements

in question were made in quantities and with prices that, as in the agreements concluded for previous periods, i.e., in accordance with the issued fishing bases with:

- U.G. "OSR Konjic" Konjic
- USR "Glavatica", Jablanica
- SRTD "RAMSKE VODE" Prozor-Rama
- USR "Neretva 1933" Mostar

The agreements stipulate the obligation for associations to spend all funds disbursed in accordance with the agreements earmarked in accordance with and in the manner prescribed by the Law on Freshwater Fishery ("Official Gazette of the FBiH", No.: 64/04) in the part of the river Neretva basin that makes up the fishing area where the right of use has been assigned to the association.

It is the obligation of the EPBiH to submit the agreements upon conclusion, with proof of payment under them, to the competent authorities, as follows: the Federal Ministry of Agriculture, Water Management and Forestry, the Federal Administration for Inspection Affairs Sarajevo, the Ministry of Agriculture, Forestry and Water Management of the HNK, the cantonal veterinary and cantonal agricultural inspection, for information and further action, in accordance with their powers and competencies, and in particular those referred to in Articles 50 and 51 of the Law on Freshwater Fishery.

### „Elektrodistribucija“ Sarajevo

The annual restocking of the river Osanica in Goražde (facility of SHPP "Osanica 1") was carried out according to the concluded Agreement.

### „Elektrodistribucija“ Tuzla

According to the Fishing Basis of the Fishermen's Association, the hydro reservoir Sniježnica was

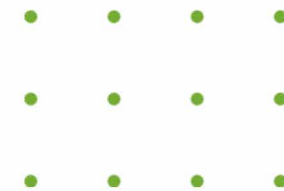
restocked with the required quantity and type of fingerlings/fish.

### „Elektrodistribucija“ Bihać

With the aim of fulfilling the obligations under the Agreement on the Improvement of Fish Stock in the Una River Basin No. 01-02-32933/19 of 07 November 2019, the Agreement on the Improvement of Fish Stock in the Krušnica River Basin No. 01-1898/09 of 12 August 2009, the legal obligations prescribed by the Law on Freshwater Fishery of the FBiH (Official Gazette of the FBiH, No. 64/04), and the Annual Fishery Improvement Programmes for 2022:

- Annual Fishery Improvement Programme of USR "Una", Bihać for 2021, Fishing area 4, fishing zone 4.2, No. 150/21 of 28 December 2021
- Annual Programme 2021 for the Fishing area 5, Fishing zone 5.1. – Krušnica No.: 337-0212/2021 of 22 November 2021 restocking of the Una and Krušnica rivers is carried out.

The obligation under the Agreement on the Improvement of Fish Stock in the Krušnica river basin is a 60% participation in the annual restocking of the Krušnica river basin, which is proportional to the estimated damage caused to the natural balance of this ecosystem and to the fish stock by the operation and maintenance of the SHPP "Krušnica" Bosanska Krupa. The obligation under the Agreement on the Improvement of the Fish Stock in the Una River Basin from November 2019 is to finance the restocking of the Una River in the amount of 90,000 pieces of brown trout fingerlings of 10-15 cm age during the period of legal validity of the Fishery Basis of 5 (five) years (2019 - 2023).



## 5. PRODUCED WASTE QUANTITIES WITHIN JP EPBIH

*In accordance with the legal framework in the field of waste management, waste management systems have been established and waste management plans have been adopted in all subsidiaries of JP EPBiH.*

*Entire waste collected is handed over to authorized companies for the collection, transportation, treatment and export of the same, until its final disposal.*

### **Non-hazardous waste**

*A total of 1,552.14 t of non-hazardous waste was produced within JP EPBiH. TPP "Tuzla" produced 808.97 t, TPP "Kakanj" 501.94 t, HPPs on the r. Neretva 39.11 t. A total of 202.12 tonnes was produced in the power distribution subsidiaries (power distributions: Sarajevo, Tuzla, Zenica, Bihać and Mostar).*

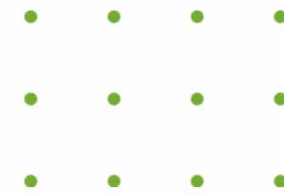
### **Slag and ash from the production process**

*The total quantity of slag and ash generated in TPP "Tuzla" and TPP "Kakanj" is 939,413 t, of which 549,387 t were delivered, and the rest was disposed of at the slag and ash landfill.*

### **Hazardous waste**

*The total quantity of hazardous waste of JP EPBiH is 12.6 t. TPP "Tuzla" produced 3.59 t, TPP "Kakanj" 1.04 t, and HPPs on the r. Neretva 2.62 t. A total of 4.9 t was produced in the power distribution subsidiaries (Sarajevo, Tuzla, Zenica, Bihać and Mostar).*





## **6. USE OF TRANSFORMER OIL IN POWER DISTRIBUTION SUBSIDIARIES (EDS)**

### **„Elektrodistribucija“ Sarajevo**

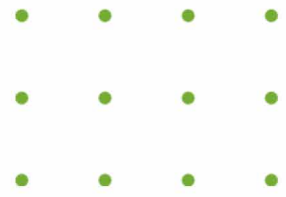
*In the normal course of the process of repair and maintenance of substations and transformers, in the area of Sarajevo Canton and Bosnian-Podrinje Canton Goražde, 4,929 kg of non-chlorinated insulating oil and heat transfer oil based on mineral oil was spent (23.3 % less oil spent in 2022 compared to 2021).*

### **„Elektrodistribucija“ Bihać**

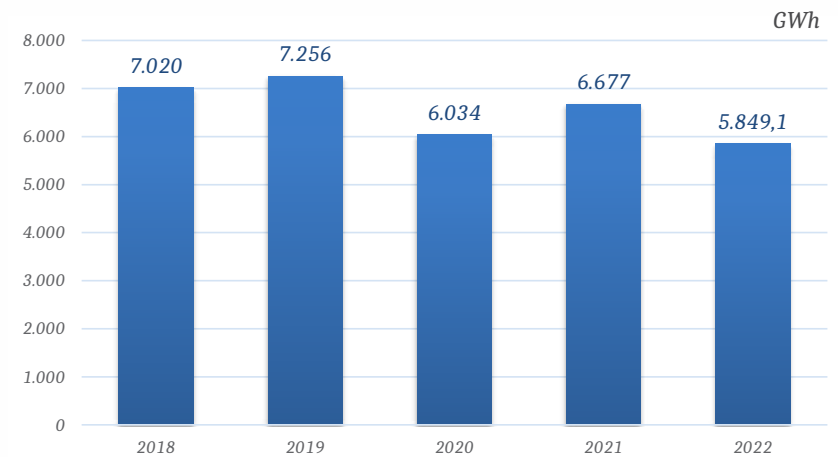
*The Subsidiary “Elektrodistribucija” Bihać does not have a transformer repair workshop. In the course of the regular process, i.e., carrying out the maintenance of the transformers and the low-oil switches within the OMiP Sector, the electrical insulation transformer oil was supplemented, and 916 kg was consumed (approximately 47 % more oil in 2022 compared to 2021).*

*In the Activity of electricity generation, Bihać plant, within the process of production and maintenance of power facilities in hydro power plants, biodegradable hydraulic oils (HD 68) and grease (LIS 2) were used.*

*The General Affairs and Transport Service uses motor hydraulic oils and antifreeze. For new vehicles, which are regularly serviced, the oil is replaced by an authorized service centre. Oil replacement in working machines is also done in the service or workshop of the company. Used oil is temporarily deposited and also prepared for final disposal. No cases of uncontrolled oil spillage have been recorded.*



## **7. TREND OF ENVIRONMENTAL IMPACT INDICATORS FOR THE PERIOD 2018 – 2022**



*Diagram 4 Total electricity produced in the facilities of JP EPBiH for the period 2018 – 2022 (GWh)*

### TPP "Tuzla" and TPP "Kakanj"

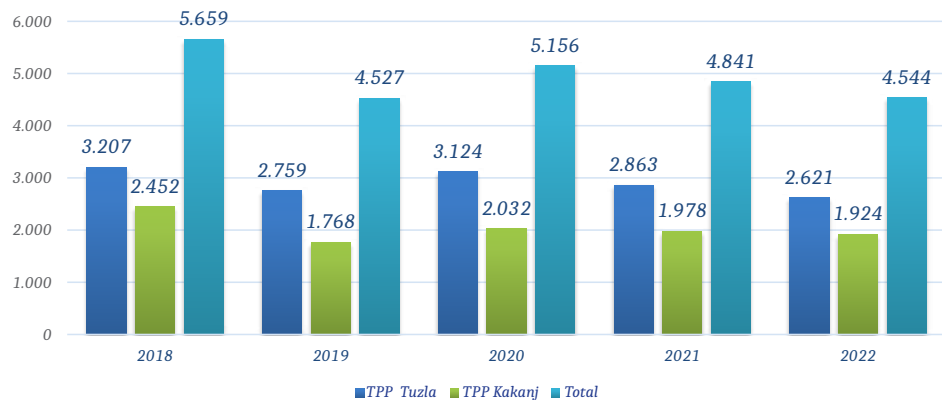


Diagram 5 Electricity produced in TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (GWh)

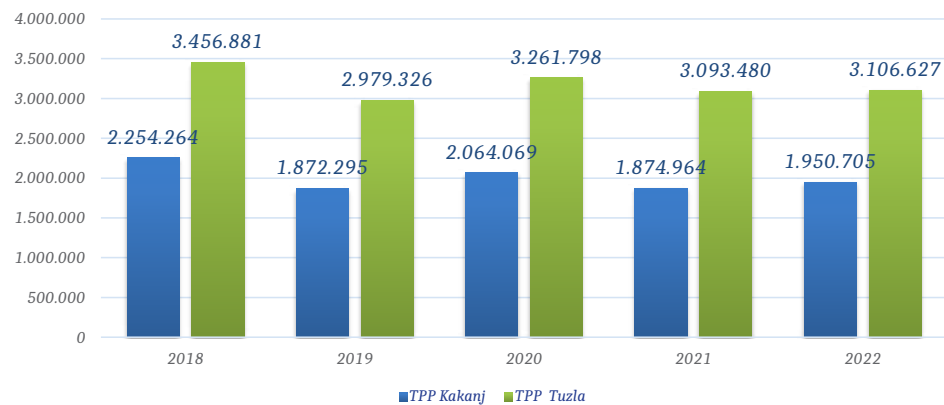


Diagram 6 Coal consumption in TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

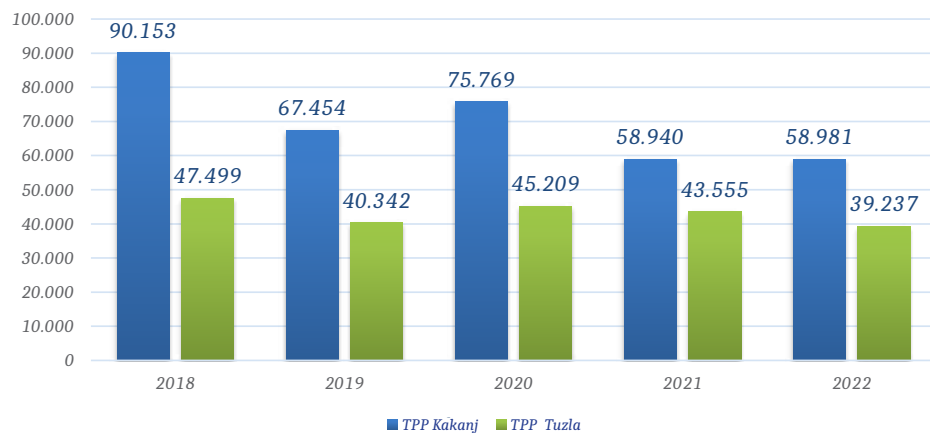


Diagram 7 Emission of SO<sub>2</sub> from TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

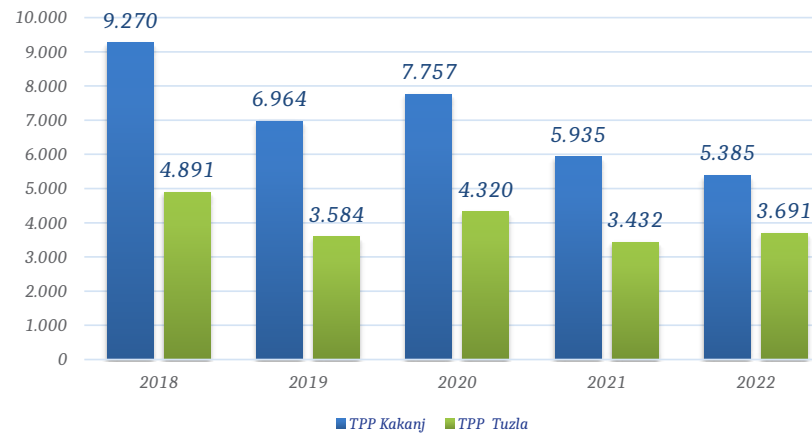


Diagram 8 Emission of NO<sub>x</sub> from TPP Tuzla and TPP Kakanj for the period 2018 - 2022 (t)

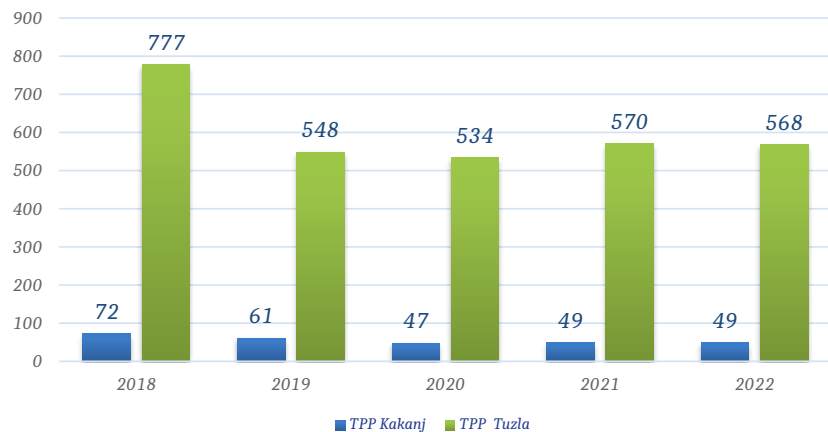


Diagram 9 Emission of solid particles from TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

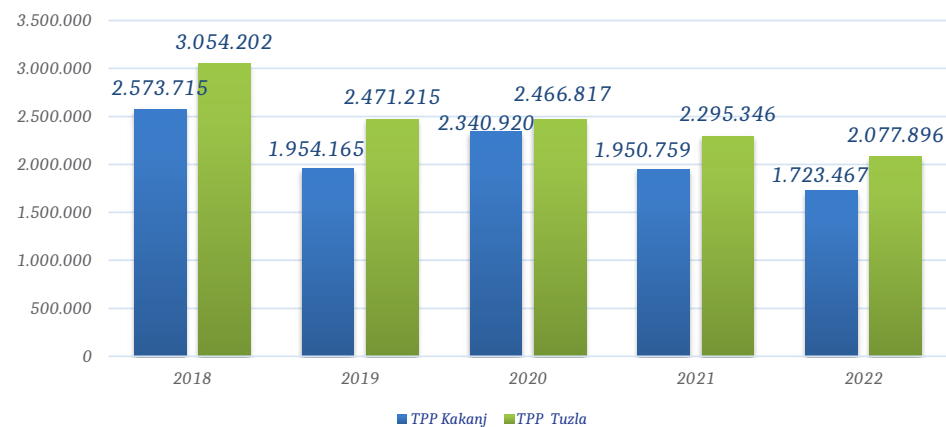


Diagram 10 Emission of CO<sub>2</sub> from TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

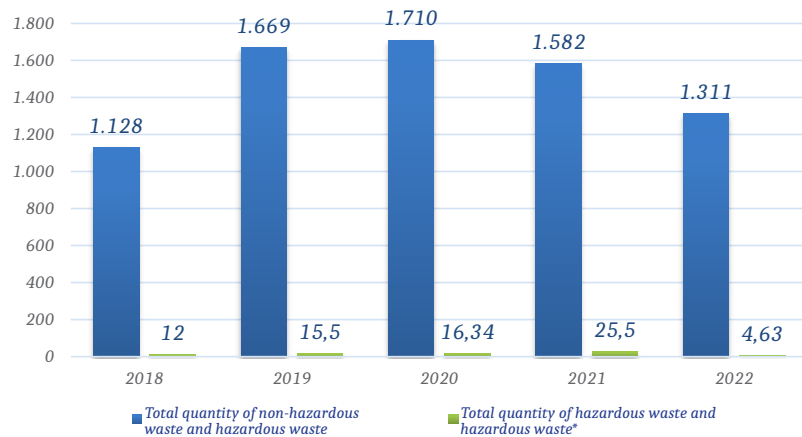


Diagram 11 Total quantity of the non-hazardous waste and the hazardous waste\* in TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

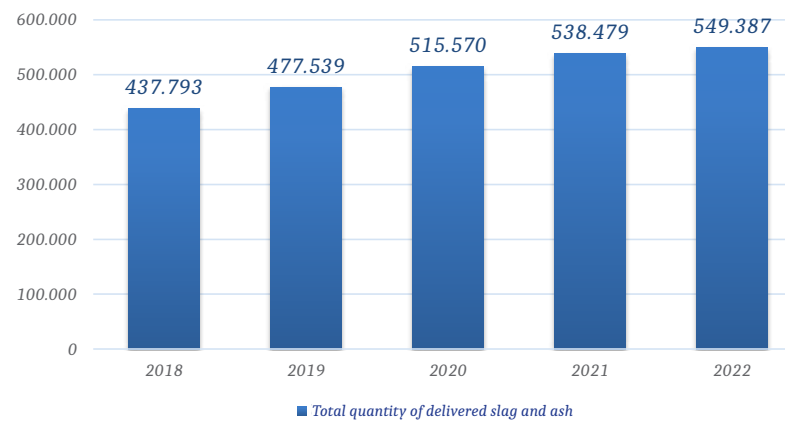


Diagram 12 Total quantity of delivered slag and ash in TPP "Tuzla" and TPP "Kakanj" for the period 2018 - 2022 (t)

### Hydro Power Plants on the river Neretva

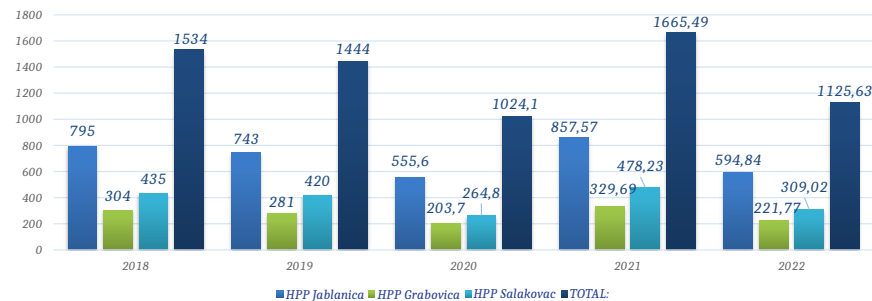


Diagram 13 Electricity generation in HPPs on the river Neretva for the period 2018 – 2022 (GWh)

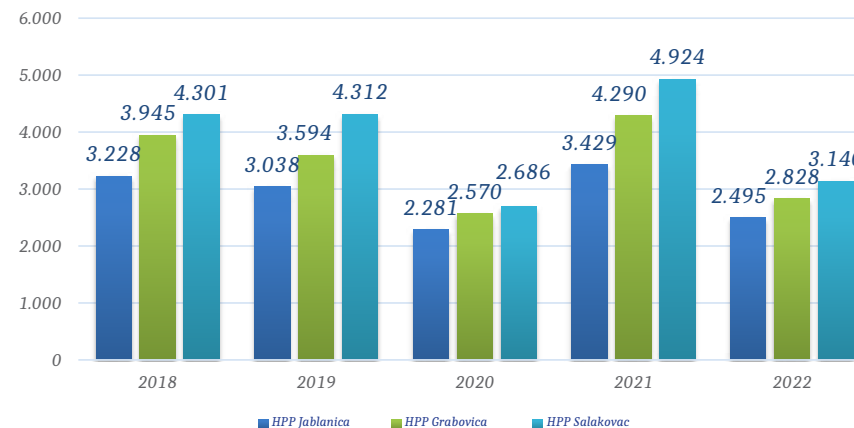


Diagram 14. Quantity of water used for electricity production in HPPs on the river Neretva for the period 2018 – 2022 (million m³)

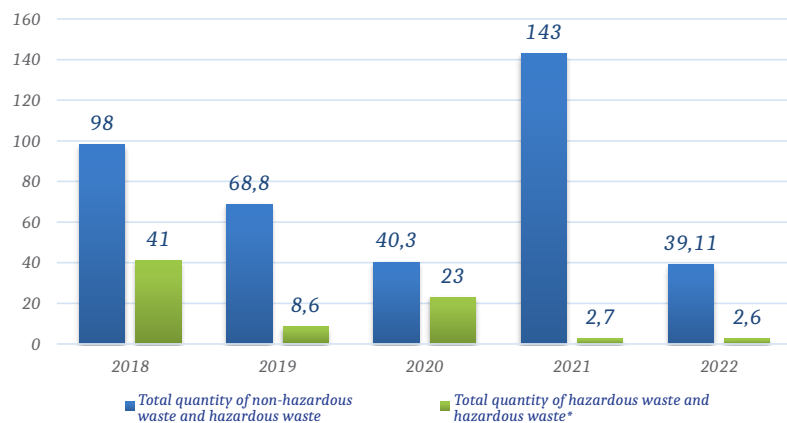


Diagram 15 Total quantity of the non-hazardous waste and the hazardous waste\* in HPPs on the river Neretva for the period 2018 – 2022 (t)

### Power distribution subsidiaries

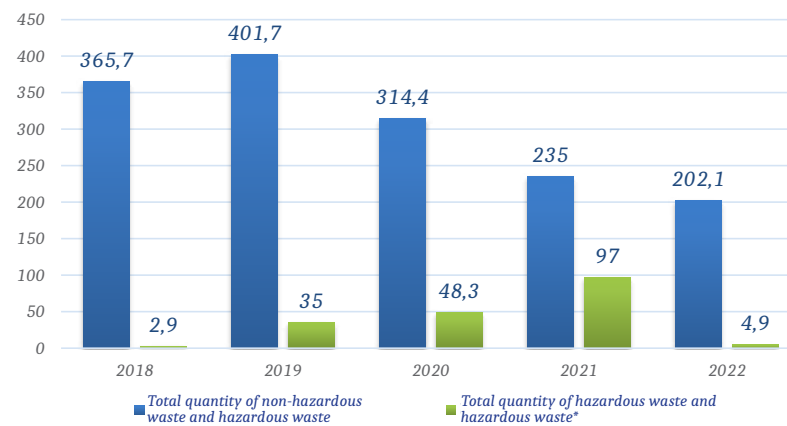


Diagram 16 Total quantity of the non-hazardous waste and the hazardous waste\* in power distribution subsidiaries: Sarajevo, Tuzla, Bihać, Zenica and Mostar for the period 2018 - 2022 (t)



## 8. REALIZATION OF CONDITIONS OF ENVIRONMENTAL AND WATER PERMITS

### **Thermal power plants**

*TPP “Tuzla” and TPP “Kakanj” implement all imposed measures from valid environmental and water permits, as part of their regular business activities.*

### **TPP „TUZLA“**

*The Federal Ministry of Environment and Tourism issued to TPP “Tuzla” a final renewed integrated Environmental Permit (No. UPI 05/2-02-19-5-242/21 MK). In order to implement the conditions from the Environmental Permit, TPP “Tuzla” has developed an Activity Plan.*

*The environmental permit prescribes:*

- *general measures to protect air, soil, water, flora and fauna;*
- *measures to prevent and minimize air pollutant emissions were implemented;*
- *measures to prevent and minimize waste generation; and*
- *measures to prevent environmental pollution by disposing of slag and ash at the landfill.*



From the prescribed measures, the emphasis is to:

- carry out quality control of the purchased coal and liquid energy sources;
- avoid procuring different types and assortments of coal for TPP "Tuzla", and equalize all coal quality characteristics in order to achieve the effects of energy efficiency of the boiler plant and ensure the stability of emissions of pollutants into the air;
- improve the quality of coal and require additional measures to be taken in the process of coal exploitation and the content of clean tailings in coal reduced;
- through the exploitation procedure, reduce the ash content in the purchased coal, increase energy efficiency in order to reduce coal consumption, and consequently reduce the production of slag and ash;
- limit the sulphur content of liquid energy sources (fuel for ignition and fire support) of type light fuel oil and medium heavy oil (fuel oil), up to a maximum of 1%;
- improve the operational management and maintenance of the plant,
- optimize the existing technological and technical solutions, in order to reduce air pollution parameters;
- increase the frequency of control or preventive technical inspections of the plant; and
- increase the placement of slag and ash in the construction industry.

With the renewed environmental permit, it is allowed to burn used mineral oils in boiler plants (categories I and II of oils created in the process of maintenance of the TPP plant). Boiler plants meet the requirements of heating oil and fuel oil installations.

## TPP „KAKANJ“

Federal Ministry of Environment and Tourism issued to the thermal power plant a renewed Environmental Permit. Within the thermal power plant, an Expert Team was appointed to monitor the obligations from the renewed environmental permit. In this regard, a list of obligations was drawn up with a proposal for the method of implementation of obligations.

The Sava River Basin Agency submitted to the thermal power plant two Decisions on Amendment of the Decision on Water Permit No. UP-I/25-3-40-161-10/19, of 29 December 2021 and UP-I/25-3-40-161-12/19, of 23 December 2022.

The appendix to the Water Permit is the Schedule with obligations, deadlines, activities and measures with a financial assessment for compliance with the applicable regulation on the conditions for the discharge of wastewater into the environment for the period 2019 - 2023.

The activities defined according to the above-mentioned permits are given as follows:

- prevention and minimization of water and energy consumption and waste reduction based on BAT documents,
- taking appropriate preventive measures: continuous wetting of the landfill, continuous wetting of the coal depot, maintenance of the dedusting system on ash silos,
- avoiding the waste generation,
- use energy and natural resources efficiently,
- regular repairing of measuring equipment for monitoring the emission of pollutants into the air,
- regular coal analysis,
- continuous monitoring of the coal burning process in boilers,

- continuous monitoring of the condition of hybrid filters, bag filters on ash silos
- continuous monitoring of the state of operation of wastewater treatment,
- implementation of corrective measures in order to maintain the functionality of the plant,
- conducting quality control of coal and liquid energy products,
- control of sulphur content in the procurement of coal and liquid fuels for ignition,
- implement consistent application of prescribed procedures and technical instructions in all operating modes of the plant and facilities (in particular, this applies to plants and devices that are used for reducing emissions of pollutants into the air),
- regular control and preventive technical inspections of the plant,
- taking corrective actions to reduce the consumption of raw water and the quality characteristics of discharged wastewater within the design or permitted limits,
- for different operating modes of the unit, optimizing the consumption of raw water for slag extinguishing,
- continuous maintenance of the cooling and lubrication system on the turbo-generators of units 5, 6 and 7,
- continuous maintenance of oil sumps under the transformer,
- continuous maintenance of the chemical cooling and dosing system,
- continuous maintenance of the storage of flammable liquids,
- increasing energy efficiency in order to reduce the consumption of coal, and thus the production of slag and ash,
- increase in sales of slag and ash in the construction

- industry,
- continuous monitoring of pollutant emissions to air and water,
- prepare and submit reports to the competent authorities in accordance with applicable legal regulations.

## HYDRO POWER PLANTS ON THE RIVER NERETVA

According to valid environmental permits, the following activities are regularly conducted.

- protection of water quality,
- protection of air quality,
- waste management,
- minimizing negative impacts produced by noise,
- minimizing negative impact on fauna,
- minimizing other negative impacts on the environment, and
- performed monitoring of: wastewater, water regime, waste and noise levels (reports prepared and submitted to the competent institutions).

## POWER DISTRIBUTION SUBSIDIARIES

### „Elektrodistribucija“ Sarajevo

The conditions from the Environmental Permit for SHPP “Osanica 1” in Goražde are observed (environmentally acceptable flow) and environmental protection measures are implemented. On 22 December 2022, the Ministry of Economy of the Bosnian-Podrinje Canton of Goražde issued a new Decision on the Water Permit, No. UP-1:04-21-926/22, valid for five (5) years, with the obligation to establish a procedure for determining the environmentally acceptable flow (EPP) within one year from the date of finality, i.e., to prepare a report on the assessment of

the EPP in the water intake profile and the Monitoring Program.

The Inspector for Environmental Protection of the Cantonal Administration for Inspection Affairs carried out one (1) inspection of the production facility of SHPP “Osanica 1”. Inspection record was made and there were no objections or measures ordered to eliminate the deficiencies.

A new edition of the General Act for Operating and Maintenance Plan has been developed in accordance with the Rulebook on the Minimum Content of the General Act on Maintenance, Use and Observation of Water Facilities. It replaced the December 2010 edition of the General Act.

After the flood and the spill of the river Željeznica that hit the Sarajevo Canton area in the period of 04/05 November 2021, based on the request of the Municipality of Ilidža, the Federal Water Inspector carried out an announced inspection at the site of “Bogatići Dam”.

For the Bogatići reservoir, the Sava River Basin Agency issued the Decision on the Water Permit, number UP-1/21-3-40-602-3/21 of 24 February 2022. Successive payments were made on the basis of a special water charge (PVN) for hydroaccumulation for the period 2014-2022.

In 2022, the Sava River Basin Agency issued a consent for emptying the reservoir – Act no. 10/40-867-2/22 of 01 August 2022.

At the request of the Mayor of the Municipality of Trnovo (FBiH), the Federal Water Inspector carried out an inspection on 22 September 2022 regarding the state of the reservoir and the possibility of cleaning the sludge sediment. According to the Record, number

UP1-14-21-2-00147/2022-1405-P-1405-1-P, a joint meeting was held between the representatives of the Municipality of Trnovo, the Sava River Basin Agency, the Cantonal Administration for Inspection Affairs (KUIP) and JP Elektroprivreda BiH d.d.-Sarajevo.

The conditions from the water permit for the Temporary Waste Storage Facility Azići are respected.

In February, the Inspectorate for Urban and Construction, Housing and Environmental Inspection of the Cantonal Administration for Inspection Affairs of the Sarajevo Canton requested the submission of documentation in order to verify compliance with the waste management permit for the Warehouse for Temporary Waste Storage Azići. Within the set deadline, the required documentation was submitted, which refers to acting in accordance with the waste management permit for the Temporary Waste Storage Warehouse Azići.

The Ministry of Municipal Economy, Infrastructure, Physical Planning, Construction and Environmental Protection of the Sarajevo Canton received a Report on the fulfilment of the conditions from the waste management permit for 2021 for the Subsidiary “Elektrodistribucija”, Sarajevo for the Sarajevo Canton. The activities on the development of the terms of reference for the development of the main design for the arrangement of the open warehouse and the Azići circle and the preparation of the necessary tender documentation for the procurement of the Main Design continued. The Procurement Plan for 2022 envisages funds for the development of the project of construction rehabilitation and reconstruction of the open warehouse Azići, as well as funds for construction works on the open warehouse Azići. In November 2022, a request for the procurement of services for the development of the project of



construction rehabilitation and reconstruction of the Azići warehouse was initiated and the procurement procedure resulted in contract awarding. Implementation of the contract is in progress. The Procurement Plan for 2023 envisages funds for Construction works on the construction of a system for the collection and treatment of rainwater and asphaltting of the open part of the central warehouse in Azići.

### **„Elektro distribucija“ Tuzla**

Two energy facilities, sHPP Modrac in Lukavac and sHPP Sniježnica with a dam and hydroaccumulation in Teočak, belong to the Sector for Renewable Sources - Tuzla Plant. For all facilities, the Sector for Renewable Sources - Tuzla Plant has valid water and environmental permits.

For these facilities, decisions/conclusions were issued as follows:

- Decision on the water permit for sHPP Modrac, number: 04/1-11-21-10882/22, of 25 April 2022, made by the competent Ministry of Agriculture, Forestry and Water Management of the Tuzla Canton, valid for 5 (five) years, i.e., until 25 April 2027;
- Decision on the water permit for the dam, sHPP and reservoir Sniježnica, number: 04/1-11-21-17144/22, of 28 November 2022, made by the competent Ministry of Agriculture, Forestry and Water Management of the Tuzla Canton, valid for 1 (one) year, i.e., until 28 November 2023;
- Conclusion on the rejection of the application for the issuance (renewal) of an environmental permit for sHPP Modrac, number: UPI-05/2-02-19-5-101/22, of 02 November 2022, made by the competent Federal Ministry of Environment and Tourism, and
- Conclusion on the rejection of the application for the issuance (renewal) of the environmental permit

for the Sniježnica dam and hydro accumulation facility, number: UPI-05/2-02-19-5-102/22, of 03 November 2022, made by the competent Federal Ministry of Environment and Tourism.

- The Decision on the environmental permit for sHPP Sniježnica, number: 12/01-1-23-032079/19, of 16 January 2020, was issued by the competent Ministry of Physical Planning and Environmental Protection of the Tuzla Canton, with a validity period of 5 (five) years, i.e., until 16 January 2025.

Water and environmental permits were issued under special conditions and measures to be taken for the gradual reduction of negative impacts on the environment, and the following is carried out accordingly:

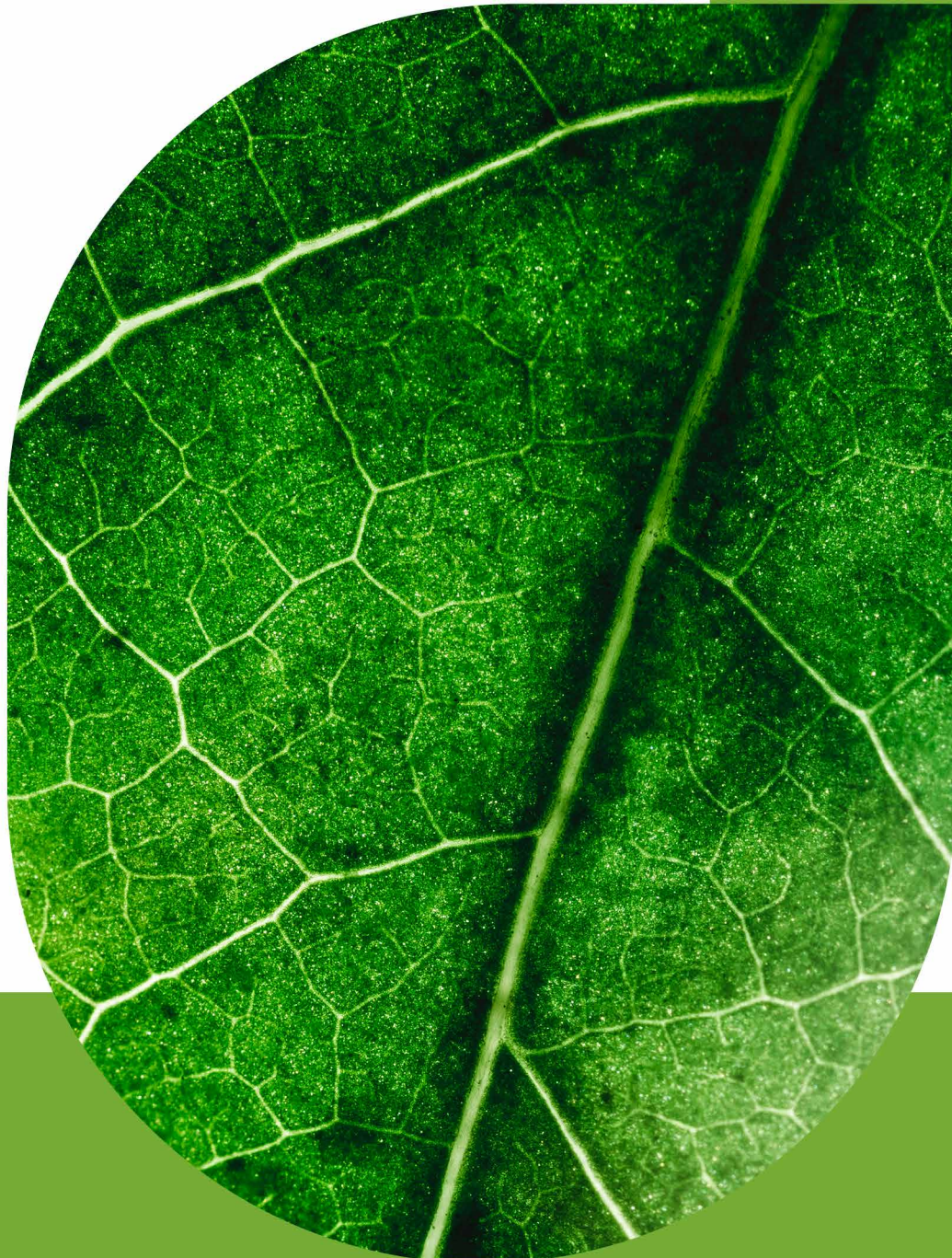
- regular observation of dams and reservoir, control of working parameters, visual control of erosive processes, etc.,
- technical, geodetic and physical observation of the dam (once a year in two series – winter and summer),
- selective separation of waste and keeping records of produced waste quantities,
- restocking of hydro reservoir Sniježnica, once a year, and
- testing and assessment of physical and chemical parameters of water quality (once a year in two series – winter and summer).

With the aim of fulfilling the prescribed obligation from the Decision on the Water Permit for the Use and Exploitation of the Dam and Reservoir Facility and sHPP Sniježnica, Municipality of Teočak, number: 04/1-13-25-18297-1/15, of 15 August 2017, which was issued for a period of 5 (five) years, i.e., until 15 August 2022, in order to obtain a new water permit, the Procurement of the service of pumping the septic tank at the Sniježnica Dam, Municipality of Teočak, was contracted and implemented on 19 October 2022.

### **„Elektro distribucija“ Bihać**

The power facilities of sHPP “Una Kostela”, sHPP “Bihać” and sHPP “Krušnica” belong to this subsidiary. All facilities possess environmental and water permits, issued under special conditions and measures that are continuously monitored.

- the captured amount of water for the needs of sHPPs is performed through an automated hydrological monitoring system, and is registered on the hydrological measuring profile: at the entrance to the supply channel, surge tank and diffuser outlet;
  - HMO manipulations are performed in the manner described in the “Plan of Operation and Maintenance” in accordance with the provisions of the rulebook on the minimum content of the general act on maintenance, use and monitoring of water management facilities;
  - technical monitoring of the facility and the surrounding terrain of the SHPP Una is performed, and the observations are interpreted in accordance with the applicable regulations, and appropriate and necessary measures of maintenance, rehabilitation and intervention are planned and implemented;
  - operational documentation is kept on all manipulations and phenomena that occur on the facility;
  - in the period of high waters, the time of operation of overflow bodies is monitored, as well as the amount of alluvium on the intake structure;
- Also, it is important to note that during 2021, there was an amendment to the legislation defining the obligation to obtain and extend the validity periods of the environmental permit, and that in accordance with the same, the Subsidiary “Elektro distribucija”, Bihać, is no more obliged to submit an application for the extension of environmental permits after the expiration of validity.



## **9. ENVIRONMENTAL MANAGEMENT SYSTEM**

### **TPP „TUZLA“**

*In January, February and March 2022, internal audits of Integrated Business Management Systems (IMS) were successfully conducted, which indicated the need for minor corrective actions and improvements in certain processes.*

*The review of the IMS by the management for 2021 was carried out on 16 June 2022.*

*In accordance with the Contract, the first supervisory audit of IMS in TPP Tuzla was successfully conducted, according to the requirements of ISO 9001:2015 and ISO 14001:2015 standards. In the Report, the Service Provider confirmed that TPP “Tuzla” maintains the management system.*

*Organizational changes were made with the application from 01 July 2022, whereby the Sector for Management Systems was renamed the Environmental Management, Quality and Energy Efficiency Department.*

*All activities in the Department / Sector were carried out according to the IMS Activity Plan of TPP “Tuzla” and PRO Activity Plan of TPP “Tuzla” for 2022.*

## TPP „KAKANJ“

TPP Kakanj has been certified according to the requirements of the BAS EN ISO 14001:2017.

The harmonization of the Environmental Management System with the requirements of the said standard implied the introduction of the following principles:

- that employees are constantly familiarized with the importance of meeting the environmental legal requirements,
- that the environmental policy has been defined and published, and
- that the environmental goals have been defined.

## HYDRO POWER PLANTS ON THE RIVER NERETVA

The Program to improve the Integrated Management System (IMS) for 2022 was developed, on the basis of which the following activities were carried out:

- A review of ISU documents (Management review) was performed by the management, in December 2022;
- An Internal audit was conducted in all plants/sectors as of November 2022;
- An analysis of environmental aspects, that relate to the process of power generation - in facilities/sectors, was carried out in February 2022;
- Assessment of compliance of work with legal and other environmental requirements was carried out in November 2022;
- Quality objectives and environmental objectives for 2022 were prepared in April 2022;

- The report on the conducted II Supervisory audit of the Integrated Management System (IMS) in the Subsidiary "Hydro Power Plants on the river Neretva" Jablanica was submitted by ICS – Institute for System Certification according to the requirements of ISO 9001:2015 and ISO 14001:2015, which was held in December 2022.

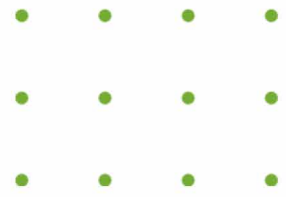
## „ELEKTRODISTRIBUCIJA“ TUZLA

The Recertification Audit of Environmental Management System BAS EN ISO 14001 was completed in July 2022, with an audit of the System according to ISO 9001, which together constitute the Integrated Management System - IMS. The Subsidiary continuously work to improve the relationship with the environment, through a systematic approach to waste management, control of environmental aspects, identification and implementation of legal regulations, fulfilment of set environmental objectives, and corrective measures. The environmental management, that is recognized as a separate process, was evaluated in terms of determining the context of organization and potential risks, and measures for identified risks and opportunities were considered.

## „ELEKTRODISTRIBUCIJA“ SARAJEVO

Quality Management System Certificate, obtained in accordance with the requirements of the ISO 9001:2015 standard, from Institut za certificiranje sistema d.o.o. (Institute for System Certification Ltd.). Sarajevo was valid until 09 July 2022.

In the field of environmental management, the Subsidiary is continuously working to improve the relationship with the environment, through a systematic approach to waste management and implementation of regulations. The first edition of the procedure of Monitoring, identification and evaluation of legal and other requirements in the field of environmental management was prepared and applies as of 29 November 2022. The procedure prescribes the procedure for monitoring, identifying and assessing the existence of conditions for the implementation of legal and other requirements in the field of environmental management in the Subsidiary. Also, a new edition of the procedure of Waste Management has been prepared in accordance with the new systematization of workplaces and putting into operation a reconstructed Vitkovići warehouse for temporary waste storage. The emphasis of the changes to the procedure was also placed on more detailed and comprehensive prescribing of the obligation to develop Construction Waste Management Plans, as mandatory documentation on the construction site. In 2022, in cases where the Subsidiary is a contractor, in the Sarajevo Canton, in accordance with the Law on Physical Planning of the Sarajevo Canton, thirteen (13) Construction Waste Management Plans were developed.



## **10. ENVIRONMENTAL PROTECTION WITHIN THE DEVELOPMENT OF ELECTRIC POWER FACILITIES**

### **TPP „TUZLA“**

*Preparatory activities for reclamation of Divkovići and Plane combustion products landfills*

*The “Plane” and “Divkovići” landfill are not used for disposal of combustion products and it is in the phase of preparatory works for closure and reclamation.*

*After the preparation of the documentation, the conducted Public Hearing, the renewal of the procedure in order to obtain an environmental permit, the Federal Ministry of Environment and Tourism issued a Decision on the environmental permit on 12 April 2022 under the number: UPI 05/2-23-11-235/18 SN.*

*On 10 May 2022, the Association “Aarhus Centre in BiH” from Sarajevo sued the Federal Ministry of Environment and Tourism before the Cantonal Court in Sarajevo for issuing an Environmental Permit for the closure of the landfill.*

*As the reason for filing the Lawsuit, the association “Arhus” stated that the Federal Ministry of Environment and Tourism did not take into account the public’s comments.*

*TPP “Tuzla” currently does not have a valid environmental permit for the closure of the landfill and cannot continue with the implementation of the planned projects.*

### **Preparatory activities for the construction of the desulphurisation plant of Unit 6**

JP EPBiH concluded a Contract with the Consultant for the consulting service for the construction of flue gas desulphurization (FGD) plant at Unit 6 (Contract number 058-TET-20). The Consortium selected as Consultant for the flue gas desulphurization project in Unit 6 was: ILF Consulting Engineers Polska sp. Z.o.o., Poland, EMG Consult EOOD, Bulgaria, ENOVA d.o.o. Sarajevo, Sarajinženjering d.o.o. Sarajevo, represented by ILF Consulting Engineers Polska sp. Z.o.o., Poland.

The procedure of prequalification of candidates in the negotiated procedure for the procurement of the plant with the preparation of the main design is in progress.

TPP "Tuzla" has a valid environmental permit.

### **TPP „KAKANJ“**

#### **Preparatory activities for the construction of the desulphurisation plant of Units 6 and 7**

TPP "Kakanj" has a final Environmental Permit for the construction of a desulphurisation and denitrification plant in Units 6 and 7.

For the project of construction of the desulphurization plant of Units 6 and 7, an Investment Decision was made at the level of JP EPBiH. The public procurement procedure for the procurement and construction of the plant was initiated. It was interrupted because the price of the eligible bid was significantly above the

estimated funds and funds approved by the Investment Decision. A repeated public procurement procedure was initiated. The bidders lodged complaints on the tender documentation. The Bidder's complaints are being considered by the Procurement Review Board.

#### **Project for arranging the slag and ash landfill Turbići**

A working version of the Main Design of the Turbići Landfill was prepared, with the Mining Institute d.d. Tuzla.

The Contract for the realization of the investment for the modernization of the transport systems of external coal supply and slag shipment of was signed;

The Study for the expropriation of areas around the landfill was prepared with CONSILIUM d.o.o. Kakanj.

An application for a declaration of general interest (Expropriation of land around the slag and ash landfill) was submitted.

A public procurement procedure has been initiated for the construction of a new road to Slapna Gora (In order to create additional space for the disposal of slag and ash).

In order to reduce the impact of the landfill on the water quality of Slapnički potok, the contract on the rehabilitation of the remaining part of the collector of Slapnički potok was completed,

the contractor is Harysco d.o.o. Sarajevo.

### **„ELEKTRODISTRIBUCIJA“ SARAJEVO**

Thirteen (13) new transformer substations were constructed and commissioned in 2022. Of these, six (6) are cable-free-standing, and seven (7) are pole-mounted transformer stations. All new power facilities are designed with hermetically sealed oil transformers. Under each transformer in cable transformer stations, the foundations are designed in such a way as to enable the collection of the entire amount of oil of the power transformer (oil pan with a minimum volume of 0.6 m<sup>3</sup>, oil impermeable) so that the technical performance meets environmental standards.

Based on investment decisions, in 2022, 4,520 new low-voltage connections, 10(20) kV medium-voltage lines in the length of 22.18 km and 0.4 (kV) low-voltage lines in the length of 78.34 km were built.

### **„ELEKTRODISTRIBUCIJA“ ZENICA**

Eleven (11) new transformer substations were constructed and commissioned in 2022. All new power facilities are designed with hermetically sealed oil transformers. Under each transformer in cable transformer stations, the foundations are designed in such a way as to enable the collection of the entire amount of oil of the power transformer (oil pan with a minimum volume of 0.6 m<sup>3</sup>, oil impermeable) so that the technical performance meets environmental standards.

Based on investment decisions, 1,369 low-voltage connections, medium-voltage lines in the length of 7.124 km and low-voltage lines in the length of 71.542 km were built.

One (1) 10(20)/0.4 kV transformer station, 7.7 km low voltage lines and 8604 pieces of billing metering points (OMM) were reconstructed.

### **„ELEKTRODISTRIBUCIJA“ BIHAĆ**

Within the electricity distribution activity, on the basis of investment decisions, two new TS 20/0.4 kV, 0.11 km of 20 kV lines, 11 new TS 10(20)/0.4 kV, 9.66 km of 10(20) kV lines, 22.63 km of 0.4 kV lines were built, and 28.49 km of 0.4 kV lines were reconstructed. Also, 1,363.0 low-voltage connections and two connections at 10(20) kV were built.

When it comes to measures taken to protect the environment, all activities when it comes to investments or regular maintenance of EEE use homologated materials that are installed in accordance with the Technical Recommendations of JP Elektroprivreda BiH d.d. Sarajevo, so that the entire environment (facilities and population) is protected from our facilities and plants to the extent required by technical instructions, norms and procedures.

In 2022, there were no construction and installation of electric power plants and facilities for which it is necessary to obtain an environmental permit from the Federal Ministry of Environment and Tourism.

When demolishing, removing and rehabilitating the existing buildings in accordance with the Rulebook of JP Elektroprivreda BiH d.d. - Sarajevo on environmental protection, construction waste, especially if it contains hazardous substances (asbestos, etc.) was properly disposed of. Mixed waste from the site generated during construction and assembly was also removed, and temporary disposal of secondary raw materials was performed.

### **„ELEKTRODISTRIBUCIJA“ TUZLA**

Within the electricity distribution activity, on the basis of investment decisions, 22 new TS 10(20)/0.4 kV, 14.19 km of 10(20) kV lines; 176.00 km of 0.4 kV lines were built, and 3.51 km of 10(20) km lines; 41.32 km of 0.4 kV lines were reconstructed. Also, 2,779 of new low-voltage connections (LV) and 11 connections to 10(20) kV (MV) were built.

All new power facilities (10(20)/0.4 kV transformer stations) were designed with hermetically sealed oil transformers, and under each transformer in cable transformer stations the foundations were designed in a way to enable the collection of the entire amount of power transformer oil (oil trough of volume of minimum 0.6 m<sup>3</sup>, oil impermeable) in order for the technical performance to meet the environmental protection standards. When constructing new power facilities in accordance with technical possibilities, it is envisaged that pole-mounted transformer stations of will not be located in the water protection zone.

### **„ELEKTRODISTRIBUCIJA“ MOSTAR**

Based on the investment decisions, 585 low voltage connections, 4 TS 10(20)/0.4 kV, 7.2 km of 10(20) kV lines and 26.9 km of 0.4 kV lines were built.

All new power facilities (10(20)/0.4 kV transformer stations) were designed with hermetically sealed oil transformers, and under each transformer in cable transformer stations the foundations were designed in a way to enable the collection of the entire amount of power transformer oil (oil trough of volume of minimum 0.6 m<sup>3</sup>, oil impermeable) in order for the technical performance to meet the environmental protection standards.

Care was taken that the pole-mounted transformer stations were not located in the water protection zone.



## ***11. CAPITAL INVESTMENTS***

### **HPP Kovanići**

The Application for preliminary environmental impact assessment was prepared. After that, the Application was submitted to the competent Federal Ministry of Environment and Tourism for their further action regarding the issuance of the Environmental Permit for the construction of the future HPP Kovanići.

### **Hydroelectric Power Plant Una Kostela Annex**

The preparation of the Application for a preliminary environmental impact assessment was contracted. After that, the Application was submitted to the competent Federal Ministry of Environment and Tourism for their further action regarding the issuance of the Environmental Permit for the construction of the future HPP Una Kostela Annex.

### **SHPP Kakanj**

The Applications for preliminary environmental impact assessment were prepared and submitted to the competent Ministry for action. Due to the inability to meet the requirements for the acquisition of ownership and possession rights on all project plots at this stage of project implementation, the competent Ministry temporarily suspended the procedure.

### **SHPP on the river Neretvica**

JP EPBiH adopted the decisions on the termination of

all contracts related to the implementation of the SHPP on the river Neretvica project, which formally halted the implementation of this project.

### **WPP Vlačić**

The development of the Critical Habitats Study began in October. The European Investment Bank (EIB) approved a grant in the amount of € 300,000, and hired a consultant to develop the Study. The environmental permit for this project expired in August 2022. An application for preliminary environmental impact assessment was prepared and submitted to the competent FMET for action.

### **PVPPs on the Plateau of Podveležje**

For the projects of PVPP Podveležje 1, PVPP Podveležje 2 and PVPP Podveležje 3, final Decisions on the environmental permit were obtained from the competent Ministry of Trade, Tourism and Environmental Protection of the HNK (Herzegovina-Neretva Canton).

### **Unit 7 TPP “Tuzla”**

JP EPBiH, in accordance with the legal procedure, in 2021, submitted the Application for the issuance of an environmental permit for the project of construction of Unit 7 of TPP “Tuzla” to the FMET.

Within the FMET, an administrative procedure was initiated on the submitted Application. During the

administrative procedure and public review of the documentation, JP EPBiH submitted a number of amendments/clarifications sent by the Ministry and interested parties.

The last information provided in the FMET related to the current status of the project of construction of Unit 7.

The administrative procedure is ongoing.





## ***12. PREPARATION OF PLANNING AND STUDY DOCUMENTS***

In the segment of study and planning documents, the following projects/studies were implemented:

## RAZVOJNI PROJEKTI

U segmentu studijskih i planskih dokumenata realizirani su sljedeći projekti/studije:

### Development Projects

- BIOFIT Project (Horizon 2020) - Retrofit of the European industry by introducing biofuels (participation of EPBiH in the demonstration case of full conversion to biomass of opt-outed Unit 5 of TPP Kakanj (118 MWe) and demonstration case of introducing co-firing with biomass (0-30%) on Unit 6 in TPP Tuzla (224 MWe).

**Environmental effect:** Reduction of CO<sub>2</sub> and pollutant emissions due to partial replacement of coal with biomass, which is a more environmentally friendly fuel.

- Preparing the application for the Danube Interreg programme – project Empowerment of the stakeholders in the implementation of the Directive on the promotion of the use of energy from renewable sources in term of energy storages and energy networks stability.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Preparing the application for the Danube Interreg program – DANube Mobility and Energy traNsition project.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Electromobility Development Project in EPBiH - direct contribution to the reduction of harmful

emissions into the air due to the use of electric vehicles instead of internal combustion vehicles, for which the precondition is the construction of infrastructure for charging electric vehicles.

**Environmental effect:** Reduction of CO<sub>2</sub> and pollutant emissions due to an increase in the use of electric vehicles compared to vehicles with internal combustion engines.

- Project of campaign for wind- and solar power potential measurement (examining wind power potential and solar power potential in several locations across Bosnia and Herzegovina with the aim of identifying suitable locations for the construction of production facilities on these renewable resources).

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Development of the project of the “WPP ‘Bitovnja ‘Measurement of wind parameters, and preparation of the Pre-feasibility study’”; completion of Component 1.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions (approx. 230,000 tons of CO<sub>2</sub> a year)

- Implementation of the Pilot project “Tests of coal combustion with wood waste biomass in the selected EPBiH thermoblocks; trial runs performed in Unit 6 of TPP “Tuzla” (February 2022), Unit 6 of TPP Kakanj (April 2022) and Unit 4 of TPP Tuzla (May 2022).

**Environmental effect:** Reduction of emissions of CO<sub>2</sub> (proportional to the percentage thermal fraction of biomass) and pollutants.

- Spring sowing of 3 x 4 ha within the implementation of the Pilot project of experimental energy crops of fast-growing willow at the mines of the RU Kreka, RMU Đurđevik and RMU Breza, in cooperation with E3 International.

**Environmental effect:** Increasing production from renewable sources (by replacing coal with biomass from fast-growing energy crops) leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Autumn sowing of 3 x 1 ha within the implementation of the Pilot project of experimental energy crops of fast-growing willow at the mines of the RU Kreka, RMU Đurđevik and RMU Breza, in cooperation with E3 International.

**Environmental effect:** Increasing production from renewable sources (by replacing coal with biomass from fast-growing energy crops) leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Contracting the annual maintenance of the plantation of fast-growing biomass with the mines of RMU Kreka, RMU Đurđevik and RMU Breza.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

### Planning and Study documents

- Preparation and revision of the Study of justification for the construction of floating

photovoltaic power plants; FPVPP Modrac, FPVPP Sniježnica.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in emissions of CO<sub>2</sub> (approx. 105,000 tons of CO<sub>2</sub> a year) and pollutant.

- Preparation and reviewing the Study of justification of construction of photovoltaic power plants on free surfaces of the EPBiH Concern mines; PVPP Višća, PVPP Bašigovci.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in emissions of CO<sub>2</sub> (approx. 390,000 tons of CO<sub>2</sub> a year) and pollutants.

- Increasing production from renewable sources leading to a reduction in emissions of CO<sub>2</sub> (approx. 390,000 tons of CO<sub>2</sub> a year) and pollutants.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in emissions of CO<sub>2</sub> (approx. 1,100,000 tons of CO<sub>2</sub> a year) and pollutants.

- Preparing a framework for financing the construction of 10 projects of PVPPs of EPBiH (approx. 180 MW) in cooperation with the EBRD.

**Environmental effect:** Increasing production from renewable sources leading to a significant reduction in emissions of CO<sub>2</sub> (approx. 220,000 t/yr) and pollutants.

- Analysis and projections of coal needs in EPBiH until 2050 with a projection of the dynamics of mine closure - Study, updated version of the Study - Annex 2.

**Environmental effect:** Reduction of CO<sub>2</sub> emissions by min. 80% in the period until 2050.

- Preparatory activities and development of ToR for the development of the Plan of net decarbonization of JP Elektroprivreda BiH until 2050 (under the auspices of the EBRD).

**Environmental effect:** Reduction of CO<sub>2</sub> and pollutant emissions.

- Participation in the implementation of the WB Project "Platform of Just Transition of Coal Regions in BiH"; monitoring the implementation of the Road Map of Just Transition of Coal Regions in BiH + preparation of the Project Note of Just Transition of RMU Zenica.

**Environmental effect:** Reduction of CO<sub>2</sub> and pollutant emissions.

- Preparatory activities and development of ToR for the pilot project of planting a fast-growing acacia culture on the land of the RU Kreka and RMU Đurđevik mines (under the auspices of the EBRD).

**Environmental effect:** : Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Preparation of ToR and evaluation of project study bids within the Project of development and preparation of implementation of the Project Conversion of Unit 3 of TPP Tuzla to biofuels.

**Environmental effect:** Reduction of CO<sub>2</sub> (approx. 400,000 t/yr) and pollutant emissions.

- Development and revision of the innovative Technical Recommendation TP 17 – Technical recommendation for connection and operation of distributed generators - completed and adopted TP-17 v.5.

**Environmental effect:** : Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Preparation of the Terms of Reference for the preparation of the Study Roof PVPPs Construction Models for Potential Active Customers with the Support of EPBiH. Preparation of the Study during 2023.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.

- Preparation of the Study "Design of the system for monitoring the quality of electricity in JP Elektroprivreda BiH d.d. – Sarajevo" - activity initiated, preparation of the Study in 2023.

**Environmental effect:** Increasing energy efficiency leading to reduced CO<sub>2</sub> and pollutant emissions

- Participation in the development of the Indicative Plan for Production Development 2023-2032 (in coordination with ISO BiH). Preparation of the bases for the Indicative Plan for Production Development 2024-2033.

**Environmental effect:** Increasing production from renewable sources leading to a reduction in CO<sub>2</sub> and pollutant emissions.



## **13. COSTS IN ENVIRONMENTAL PROTECTION**

*In the JP EPBiH, for the time being, no special records are kept on investments and costs for implementation of plans and programs in the domain of environmental protection and natural resources. Funds are planned and realized in the framework of investments and regular maintenance of plants and facilities. There is no harmonized procedure for presenting objective indicators of total costs in realized activities, which includes the fees for the use of natural resources. Therefore, it is difficult to provide safe and complete data on total spent funds of JP EPBiH in this context.*

*According to the data available for the preparation of this document, the total amount is **40,708,294.43 KM**. This indicator is a confirmation that environmental protection is an important part of the total business of our company also in financial aspect.*

The Table 4, according to available data, provides costs of environmental protection by subsidiaries, at the level of the Company Directorate, and the total for JP EPBiH.

Table 4 Costs in Environmental Protection

<i>JP EPBiH</i>	<i>in KM</i>
<b>Activities implemented</b>	
<i>TPP "Tuzla"</i>	763,106.33
<i>TPP "Kakanj"</i>	372,298.75
<i>HPPs on the river Neretva</i>	282,824.12
<i>ED Sarajevo</i>	185,044.91
<i>ED Tuzla</i>	265,587.64
<i>ED Zenica (includes ED Travnik)</i>	451,520.05
<i>ED Bihać</i>	273,260.00
<i>ED Mostar</i>	112,961.21
<b>Total 1</b>	<b>2,706,603.01</b>
<b>Environmental protection fees</b>	
<b>TPP "Tuzla"</b>	
<i>Air pollution charge</i>	1,720,361.62
<i>Fee pursuant to the Law on the allocation of part of the revenues generated by work of TPP</i>	3,948,959.32
<i>Fee for water protection (EBS)</i>	135,182.24
<i>General water management fee</i>	73,783.52
<i>Fee for the use of generally beneficial forest functions</i>	139,316.87
<i>Garbage collection fee</i>	56,945.71
	<b>6,074,549.28</b>
<b>TPP "Kakanj"</b>	
<i>Air pollution charge</i>	2,439,574.36
<i>Fee pursuant to the Law on the allocation of part of the revenues generated by work of TPP</i>	3,282,556.17
<i>Fee for water protection (EBS)</i>	50,882.89
<i>Water contribution for used water</i>	293,724.00
<i>Utility fees and concessions</i>	1,219,808.52
	<b>7,286,545.94</b>

<b>HPPs on the river Neretva</b>	
<i>Special water fees for water use</i>	1,125,620.34
<i>Contributions for hydro-accumulation</i>	12,757,646.02
<i>Contributions for hydro-accumulation (cantonal level)</i>	5,628,101.69
<i>Fee for water protection HPPs on the river Neretva</i>	4,878.60
<i>Utility fees and concessions</i>	248,084.04
	<b>19,764,330.69</b>
<i>Agreements on the regulation of outstanding obligations referred to in Article 35 of the Law on Freshwater Fishery (Official Gazette of the FBiH No. 64/04) (for 2021, paid in 2022)</i>	<b>653,341.00</b>
<b>Elektrodistribucija Sarajevo</b>	
<i>General water fee</i>	55,162.96
<i>Fee for the use of generally beneficial forest functions</i>	15,719.10
<i>Fee from the income generated by the use of the hydro-accumulation facility for hydro-accumulation for SHPP Bogatići</i>	80,985.72
<i>Special water fee for Bogatići hydroaccumulation</i>	73,850.87
<i>Special water fee for SHPP Osanica 1</i>	1,941.46
<i>Concession contract for SHPP Osanica 1</i>	13,931.92
	<b>241,592.03</b>
<b>Elektrodistribucija Tuzla</b>	
<i>General water fee</i>	61,645.90
<i>Fee for the use of generally beneficial forest functions</i>	25,500.00
<i>Tax for protection against natural and other disasters</i>	61,645.90
<i>Utility fees and concessions</i>	11,314.74
<i>Water contribution for the use of hydroaccumulation</i>	240,764.68
<i>Water contribution for used water</i>	135,402.86
<i>Municipal waste collection fee</i>	28,884.21
	<b>565,158.29</b>

<b>Elektrodistribucija Zenica (includes Travnik)</b>	
General water management fee	62,832.34
Special tax for protection against natural and other disasters	62,832.34
Fee for the use of generally beneficial forest functions	4,880.40
Fee for use of road belt	17,158.23
Utility fees and concessions	902,718.62
Garbage collection fee	38,245.72
Other utilities and fees	2,846.90
	<b>1,091,514.55</b>
<b>Elektrodistribucija Bihać</b>	
General water management fee	38,460.00
Fee for water protection	140.00
Water contribution for used water	27,170.00
Tax for protection from natural disasters	38,640.00
Utility fees and concessions	342,530.00
Fee for use of road belt	24,030.00
Fee for the use of generally beneficial forest functions	22,330.00
	<b>493,300.00</b>
<b>Elektrodistribucija Mostar</b>	
General water management fee	22,278.00
Municipal utility charges	1,666.59
Tax for protection from natural disasters	22,278.82
Fee for use of road belt	8,082.68
Fire insurance fee	16,636.04
Municipal waste collection fee	15,810.10
Other utility charges	2,199.06
	<b>88,951.29</b>

<b>Total 2</b>	35,605,942.07
<b>Company Directorate</b>	
<b>Sector for Strategic Development</b>	
<i>Development Projects</i>	668,239.00
<i>Planning and Study documents</i>	299,000.00
	<b>967,239.00</b>
<b>Capital investments</b>	44,426.87
<i>Water charges and communal utilities</i>	896,311.30
	487,772.18
<b>TOTAL JP EPBiH</b>	<b>40,708,294.43</b>





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