REPORT ON

ENVIRONMENTAL PROTECTION

2024

TABLE OF CONTENTS

1. INTRODUCTION

The 2024 Report on Environmental Protection of JP Elektroprivreda BiH d.d. Sarajevo was made in accordance with the Rulebook on Environmental Protection of JP Elektroprivreda BiH d.d. Sarajevo, Report on the Achievement of the Eelectricity Balance for the year 2024, as well as individual reports on environmental protection of organisational units within JP Elektroprivreda BiH d.d. Sarajevo.

2. PRODUCTION OF ELECTRICITY AND THERMAL ENERGY

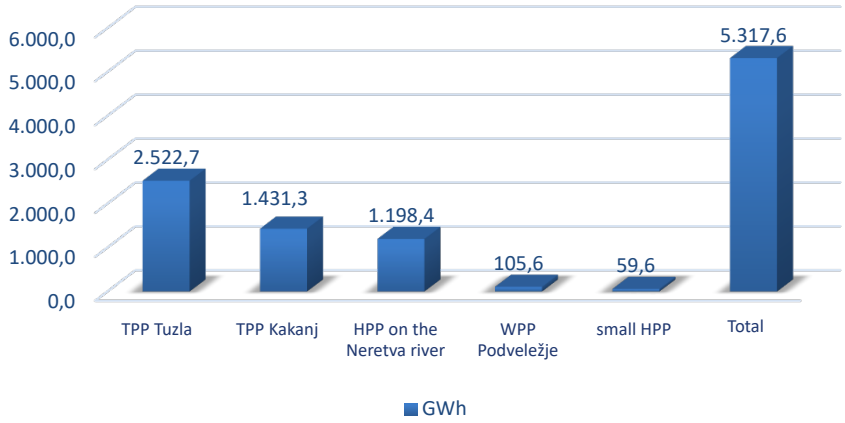
In 2024, JP Elektroprivreda BiH d.d. Sarajevo (hereinafter: JP EPBiH) achieved a total production of electricity in the amount of 5,317.6 GWh (Chart 1 - Realised production of electricity in GWh).

The total production of hydropower plants (hydropower plants: Jablanica, Grabovica and Salakovac and small hydropower plants owned by JP EPBiH) was realised in the amount of 1,258.02 GWh. Hydropower plants on the transmission network: Jablanica, Grabovica and Salakovac produced a total of 1,198.4 GWh. Small hydropower plants owned by JP EPBiH, including a share in the production of the small Hydroelectric Power Plant Bogatići, produced a total of 59.6 GWh. The Podveležje wind farm produced 105.6 GWh.

Thermal power plants Tuzla and Kakanj produced a total of 3,954.0 GWh. Thermal Power Plant Tuzla (hereinafter: TPP Tuzla) produced 2,522.7 GWh, and Thermal Power Plant Kakanj (hereinafter: TPP Kakanj) produced 1,431.3 GWh.

A total of 4,159,260.0 t of coal was used for the production of electricity, thermal energy and process steam in thermal power plants. 3,932,756.0 t were used for the production of electricity, while 187,251.0 t were used for the production of thermal energy and process steam.

Chart 1 - Realised production of electricity in (GWh)



Of the total quantities used, 2,451,471.0 t (58.9%) were used in TPP Tuzla, and 1,707,789.0 t (41.1%) in TPP Kakanj. (A total of 4,353,785.0 tons of coal (a total of 4,309,032.0 tons of coal) and biomass (a total of 44,753.0 tons of biomass) were used in the thermal power plants for the production of electricity, thermal energy, and process steam, of which 2,683,577.0 tons of coal and 32,626.0 tons of biomass were used in the Tuzla Thermal Power Plant and 1,625,455.0 tons of coal and 12,127.0 tons of biomass were used in the Kakanj Thermal Power Plant. Of the total amount of coal and biomass used, 4,232,094.0 tons of coal and biomass or 97.20% were used for the production of electricity, while the amount of 121,391.0 tons of coal or 2.80% was used for the production of thermal energy and process steam.

The total calorific value of the used coal was 11,702.0 kJ/kg. At the same time, the calorific value of the coal used for the operation of the Tuzla TPP was 10,881.0 kJ/kg, and for the Kakanj TPP 12,812.0 kJ/kg. The total specific heat consumption in thermal power plants was 12,779.0 (12,690) kJ/kWh. In TPP Tuzla, the specific consumption was 12,371.0 (11,860) kJ/kWh, while in TPP Kakanj, it was 13,283.0 (14,153.0) kJ/kWh.

A total of 1,907.3 (2,484.7) t of fuel oil and 1,934.9 (2,009.6) t of heating oil were used for ignition and fire support in thermal power plants.

3. ENVIRONMENTAL IMPACT INDICATORS AND ENVIRONMENTAL PROTECTION MEASURES

In accordance with the applicable legislation in the field of environmental protection, JP EPBiH, as part of its activity, continuously monitors and analyses the impact of its business processes on the environment.

Air emissions from thermal power plants

In TPP Tuzla and TPP Kakanj, in accordance with legal regulations, continuous measurements of pollutant emissions into the air (sulphur dioxide (SO_2), nitrogen oxides (NOx), solid particles) and calibration of the system for continuous measurement of polluting substances into the air are carried out. In addition, direct carbon dioxide (CO_2) emissions resulting from the production of electricity and heat in the production facilities of JP EPBiH are continuously monitored.

Total annual emissions of pollutants into the air and direct CO_2 emissions are shown in Table 1.

Table 1 - Air pollutant emissions and CO_2 emissions from TPP Tuzla and TPP Kakanj

Power plant	NOx	SO_2	solid particles	CO_2
	t/year	t/year	t/year	t/year
TPP Tuzla	4.523,00	36.965,00	718,00	2.079.556
TPP Kakanj	3.930	54.714,0	30,0	1.259.375
Total	**8.453,0**	**91.697,0**	**748,0**	**3.338.931,0**

In the process of co-combustion with coal in 2024, a total of 32,630.0 t of biomass was consumed at TPP Tuzla. The total CO_2 emission was reduced by 24,473.0 t.

In the process of co-combustion with coal, in 2024, a total of 12,127.0 t of biomass was consumed at TPP Kakanj. The total CO_2 emission was reduced by 8,576.0 tons.

Water consumption and water emissions in thermal power plants

Data on the amount of water used for the production of electricity, thermal energy and process steam in TPP Tuzla and TPP Kakanj, as well as data on the total burden of wastewater pollution expressed in terms of population equivalent (PE) are shown in Table 2.

Table 2. Balance of water used and released for the production of electricity, thermal energy and process steam in TPP

Power plant	Water used m^3	Discharged water m^3	Population equivalent (PE)
TPP Tuzla	12.021.727,0	4.395.826,0	30.882,8
TPP Kakanj	8.278.524,0	3.177.947,0	31.659,0

TPP Tuzla

Air protection activities

Checking the correctness of the ecological monitoring system

The regular annual/monthly validation of the measured data of the environmental monitoring system on blocks 3, 4, 5 and 6 of the Tuzla TPP was carried out by the certified company TQM d.o.o. Lukavac (Contract number: 103-TETZ/22 and Contract number: 142-TETZ-24 - Inspection of devices for measuring the emission of pollutants into the air). As part of the contract, the following was done: checking of devices for measuring the concentration of solid particles, CO, SO_2 and NOx, as well as the content of CO_2 and dry O_2 - AST, checking of devices for measuring temperature, pressure and flow in flue gas, validation of measured values and periodic checking of pollutant emissions into the air at the request of TPP Tuzla.

Measurement of suspended particulate matter content at the Divkovići and Jezero II combustion product landfills

The decision on renewed environmental permit (Document number: 05/2-02-19-5-242/21 MK, dated 01/08/2022) TPP Tuzla ordered, in the dry period, regular measurement of the content of PM10 suspended particles at the Divkovići and Jezero II landfills of combustion products.

TPP Tuzla concluded and implemented the Air Quality Determination Agreement at the Divkovići and Jezero II landfills with the accredited company TQM d.o.o. Trickster. In the period 14/10/2024 – 13/11/2024, sampling was carried out at two measuring points at the location of the Jezero II landfill and at two measuring points at the location of the Divkovići landfill and analysis of them was carried out using the Bergerhoff method.

The obtained results showed that the values of the content of suspended particles at the landfills of combustion products Divkovići and Jezero II do not exceed the limit values prescribed by the Rulebook on the manner of monitoring air quality and defining the type of pollutants, limit values and other air quality standards (Official Gazette of FBiH, Nos. 1/12, 50/19).

NERP BiH - National emission reduction plan in BiH

In order to fulfill the obligations arising from the National Emission Reduction Plan of Bosnia and Herzegovina, the preparatory activities for the construction of the flue gas

desulphurisation plant of Block 6 continued at TPP Tuzla. An investment decision was made for the desulphurisation of Block 6. The preliminary design of the Block 6 desulphurisation was made, on the basis of which the Federation Ministry of Environment and Tourism issued a Decision on the environmental permit (Document number: UPI 05/2-02-19-5-92/20 SN of 12/05/2022).
During 2024, the negotiation process was carried out with a qualified bidder for the construction of the plant with the development of the Main Design.

Activities in the field of water protection

TPP Tuzla obtained a new water permit (Document number: UP-1/21-3-40-151-5/24 of 26/03/2024) from the competent Sava River Basin Agency. It is valid until 30/06/2026. The permit was issued for the technological wastewater and storm polluted water discharge in accordance with Article 1 of the Decree on Amendments to the Decree on the Conditions of Wastewater Discharge into the Environment and the Public Sewerage System (Official Gazette of FBiH, No. 1/24).

In accordance with the new Water Permit, TPP Tuzla produced a Dynamic Action plan for the realisation of the conditions set by it. The dynamic plan was submitted to the Sava River Basin Agency for further processing.

Also, TPP Tuzla holds a Water Permit Decision (Document No. 04/1-11-21-22075/22 of 17/11/2022) issued by the Tuzla Canton Ministry of Agriculture, Forestry and Water Management, for the discharge of sanitary and faecal waste water.
TPP Tuzla, for the needs of the production process, used a total of 12,021,727.0 m^3 of water, and discharged a total of 4,395,826.0 m^3 of water.

<u>The level of the water mirror at the Jezero II process product disposal site</u>

During 2024, the level of the Jezero II landfill water mirror was constantly increasing, due to the continuous disposal of process products, as well as the large catchment area for all rainwater and leachate. Due to the foregoing, the free volume of the landfill is decreasing, and due to the safety of the dam, hydraulic filling with slag and ash is conditioned by the landfill water discharge.

Due to the need to maintain the level of the water mirror at the maximum permitted elevation (280 m.n.m.), TPP Tuzla asked the Sava River Basin Agency for a permit for an extraordinary discharge of water from the Lake II landfill into the recipient (Jala River). In 2024, the Sava River Basin Agency issued four orders for the extraordinary discharge of technological water in a total permitted amount of 2,550,000.0 m^3.
During the discharge of process wastewater, TPP Tuzla, carried out an extraordinary measurement of the pollution burden expressed through PE at measuring point E3 in accordance with the legislation.
The main reason for the discharge of the landfill water is to increase the level of safety of the hydrotechnical facilities at the Jezero II location.

Waste management activities

According to the legal framework in the field of waste management, documents of the environmental management system, as well as the 2024 Waste Management Plan of TPP Tuzla, TPP Tuzla carried out selective collection of waste and managed it in an environmentally acceptable manner. The waste was temporarily stored in an adequately arranged temporary waste storage facility, and handed over to authorised waste operators (authorized companies licensed to manage certain types of waste by the relevant ministry), within a period of up to one year.
In accordance with the Decree on the waste management information system, TPP Tuzla entered data into the information system of the Environmental Protection Fund, about the generated waste as well as the method of its disposal.
In 2024, TPP Tuzla concluded a contract on the sale of secondary raw materials with the following companies: CIBOS d.o.o. Sarajevo and Akva Invest d.o.o. Živinice.
Disposal of hazardous waste was carried out by the company Kemokop d.o.o. Tuzla.
Sludge disposal was carried out by the company Delta petrol Kakanj, and disposal of electrical and electronic waste by the company CIBOS d.o.o. Business Unit Tuzla (for ZEOS).

<u>Disposal site for Jezero process products - Phase II</u>

The geodetic recording of the filling of the Jezero II landfill was done by the company GRID d.o.o. Banja Luka. Based on the results of the survey and the fact that the project plans to fill the landfill up to an elevation of 280.00 m.n.m. and based on the planned filling dynamics (of ~600,000 m^3/year of process products), it follows that the remaining volume for disposal is sufficient for disposal in the next 2 years approximately.

Within the framework of the Capital Investments Sector, activities are carried out on the project Technical Recultivation of Surface Mine Šikulje (hereafter SM Šikulje) with the aim of defining the method of transportation and disposal of process products from TPP Tuzla.

As part of the project, the following was done:

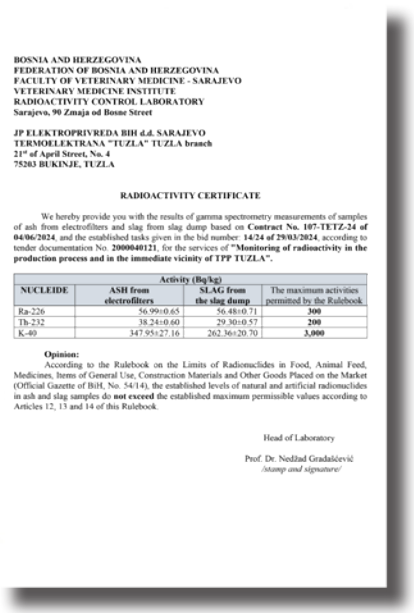
- *Preliminary design of internal transport of process products of Tuzla Thermal Power Plant,*
- *Main design of external transport to SM Šikulje by railway,*
- *Study on the possibilities of applying Tuzla Thermal Power Plant process products as part of technical recultivation of devastated areas of The Šikulje surface mine, together with mine tailings,*
- *Study of geomechanical works for the system of reception, unloading, transport and disposal of process products as part of technical recultivation of devastated areas of surface mine Šikulje, together with mine overburden (missions G1, G21, G23),*
- *Study on occupational safety, fire protection and disposal of construction waste;*
- *Supplementary mining design of transportation and disposal of the products of the Tuzla TPP process as part of the recultivation of degraded mining areas of the surface mine Šikulje,*
- *Supplementary mining design for the preparation, unloading and transportation of the products of the TPP Tuzla process at the Šikulje surface mine location,*
- *Obtained previous water approval for activities at the Šikulje surface mine,*
- *obtained Water approval for activities at the Šikulje surface mine*
- *received opinion of the Federation Ministry of Environment and Tourism on the need to obtain an Environmental Permit for activities at the Šikulje surface mine (an Environmental Permit is not required),*
- *received opinion of the Federation Ministry of Environment and Tourism on the need to obtain an Environmental Permit for internal transport in TPP Tuzla (Environmental Permit is not required).*

<u>Radioactivity monitoring indicators</u>

In 2024, according to the Rulebook on the Limits of Radionuclides in Food, Animal Feed, Medicines, Items of General Use, Construction Materials and Other Goods Placed on the Market (Official Gazette of BiH, No. 54/14), TPP Tuzla conducted annual monitoring of the level of radioactivity in the production process and the immediate surroundings of its facilities. The contract was concluded with the Faculty of Veterinary Medicine in Sarajevo. As part of the monitoring, measurements were performed as follows:

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

The measurement determined that the level of natural and artificial radionuclides in the samples taken did not exceed the established maximum permitted values.
The measured levels of natural radionuclides, in most of the coals used in the Tuzla TPP, are within the average values of world coals with slightly higher values this year determined in the coal of the Rudnik uglja Gračanica d.o.o. Gornji Vakuf-Uskoplje (hereafter RU Gračanica).
It is recommended that the use of coal from RU Gračanica, for the purpose of prevention, must be conditioned by mixing it with other coals used in TPP Tuzla.
In addition to monitoring the level of radioactivity, the Faculty of Veterinary Medicine in Sarajevo also measured radioactivity in the production process, the concentration of radon Rn222 in the air, and it also performed radiological research of food of plant and animal origin. Based on the results of the research, it was concluded that the dose value, from external irradiation, was within the average values of Southeastern Europe and that measurements of exposure doses, radon concentration in the indoor air and natural radionuclide concentrations show a slight impact on the environment. Monitoring of the content of natural radionuclides in the soil, plant cover and plant and animal products at the location of the settlements of Husino and Šići-Bistarac found that they varied within the framework of average values for these types of samples.
Based on the measurements, a certificate was issued for the radioactivity of slag and ash.



BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FACULTY OF VETERINARY MEDICINE - SARAJEVO
VETERINARY MEDICINE INSTITUTE
RADIOACTIVITY CONTROL LABORATORY
Sarajevo, 90 Zmaja od Bosne Street

JP ELEKTROPRIVREDA BIH d.d. SARAJEVO
TERMOELEKTRANA "TUZLA" TUZLA branch
21st of April Street, No. 4
75203 BUKINJE, TUZLA

RADIOACTIVITY CERTIFICATE

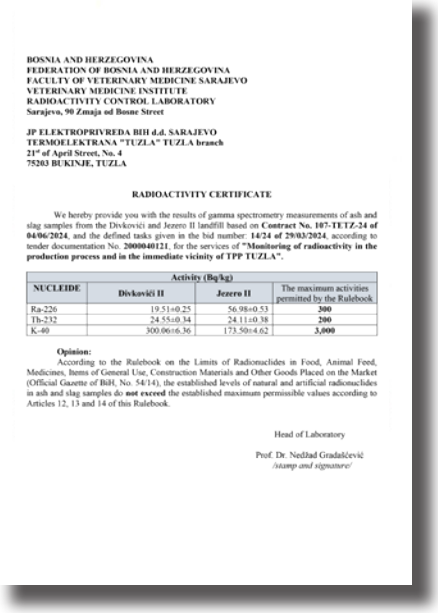
We hereby provide you with the results of gamma spectrometry measurements of samples of ash from electrofilters and slag from slag dump based on **Contract No. 107-TETZ-24 of 04/06/2024**, and the established tasks given in the bid number **14/24 of 29/03/2024**, according to tender documentation No. **2000040121**, for the services of **"Monitoring of radioactivity in the production process and in the immediate vicinity of TPP TUZLA".**

	Activity (Bq/kg)		
NUCLEIDE	ASH from electrofilters	SLAG from the slag dump	The maximum activities permitted by the Rulebook
Ra-226	56.99±0.65	56.48±0.71	**300**
Th-232	38.24±0.60	29.30±0.57	**200**
K-40	347.95±27.16	262.36±20.70	**3,000**

Opinion:
According to the Rulebook on the Limits of Radionuclides in Food, Animal Feed, Medicines, Items of General Use, Construction Materials and Other Goods Placed on the Market (Official Gazette of BiH, No. 54/14), the established levels of natural and artificial radionuclides in ash and slag samples do **not exceed** the established maximum permissible values according to Articles 12, 13 and 14 of this Rulebook.

Head of Laboratory

Prof. Dr. Nedžad Gradaščević
/stamp and signature/



BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FACULTY OF VETERINARY MEDICINE SARAJEVO
VETERINARY MEDICINE INSTITUTE
RADIOACTIVITY CONTROL LABORATORY
Sarajevo, 90 Zmaja od Bosne Street

JP ELEKTROPRIVREDA BIH d.d. SARAJEVO
TERMOELEKTRANA "TUZLA" TUZLA branch
21st of April Street, No. 4
75203 BUKINJE, TUZLA

RADIOACTIVITY CERTIFICATE

We hereby provide you with the results of gamma spectrometry measurements of ash and slag samples from the Divkovići and Jezero II landfill based on **Contract No. 107-TETZ-24 of 04/06/2024**, and the defined tasks given in the bid number **14/24 of 29/03/2024**, according to tender documentation No. **2000040121**, for the services of **"Monitoring of radioactivity in the production process and in the immediate vicinity of TPP TUZLA".**

	Activity (Bq/kg)		
NUCLEIDE	Divkovići II	Jezero II	The maximum activities permitted by the Rulebook
Ra-226	19.51±0.25	56.98±0.53	**300**
Th-232	24.55±0.34	24.11±0.38	**200**
K-40	300.06±6.36	173.50±4.62	**3,000**

Opinion:
According to the Rulebook on the Limits of Radionuclides in Food, Animal Feed, Medicines, Items of General Use, Construction Materials and Other Goods Placed on the Market (Official Gazette of BiH, No. 54/14), the established levels of natural and artificial radionuclides in ash and slag samples do **not exceed** the established maximum permissible values according to Articles 12, 13 and 14 of this Rulebook.

Head of Laboratory

Prof. Dr. Nedžad Gradaščević
/stamp and signature/

Soil analysis

In accordance with the conditions of the Decision on the Environmental Permit, in 2023, TPP Tuzla contracted a soil analysis service with the company TQM d.o.o. Lukavac. Soil samples were taken over a period of one year (July 2023 to July 2024) at the following locations: TPP Tuzla compound, Jezero II location and Divkovići location. Based on the test results, it was concluded that the soil at the Tuzla TPP compound location is alkaline to very alkaline soil.

According to the test results, the soil at the Jezero II location is optimum to very alkaline soil.

At the location of the Divkovići landfill, the soil is moderately acidic to alkaline.

TPP Kakanj

Air protection activities

Checking the correctness of the automatic monitoring system

In order to ensure the legally prescribed quality of measured data on air emissions, TPP Kakanj initiated the public procurement procedure for the following:

- *annual validation of measured data on air emissions obtained through the automatic measurement system, on blocks 5, 6 and 7 and*
- *calibration of the automatic measurement system for air pollutant emissions. (This activity implies calibration of devices for measuring the concentration of solid particles in flue gases, calibration of devices for measuring the concentration of SO_2, NOx, CO, CO_2 and O_2 in flue gases, calibration of devices for measuring the flow of flue gases, and verification of devices for measuring the temperature and pressure of flue gases at the measurement point.)*

NERP BiH - National emission reduction plan in BiH

In 2024, TPP Kakanj continued with activities to fulfill the requirements set through NERP BiH. In December, JP EPBiH signed the Contract on the construction of a joint plant for flue gas desulphurisation on blocks 6 and 7 in TPP Kakanj (Contract number: 145-TEK-24). The contract was signed with a consortium of companies. The leader of the consortium is Dongfang Elektric International Corporation, People's Republic of China.

According to the Contract, the term for the construction of the plant is 36 (thirty-six) months from the day of its introduction into the business.
In accordance with the NERP of BiH, TPP Kakanj is obliged to contract and install a plant for the denitrification of flue gases of blocks 6 and 7. In 2024, TPP Kakanj realised activities for making investment decisions for the plant construction.

Water protection activities

TPP Kakanj obtained a new Water Permit (Document number: UP-1/2-3-40-501-7/23 of 26/02/2024) from the competent Sava River Basin Agency. It is valid until 30/06/2026. The permit was issued for the discharge of process wastewater, in accordance with Article 1 of the Decree on Amendments to the Decree on Conditions for Discharge of Wastewater into the Environment and the Public Sewage System (Official Gazette of FBiH, No. 1/24).
In accordance with the new Water Permit, TPP Kakanj produced a Dynamic Action Plan for the purpose of meeting the conditions set by it. The Dynamic Plan was submitted to the Sava River Basin Agency for further processing. The Dynamic Plan contains detailed activities by year with financial estimates and deadlines for the construction and commissioning of systems for the collection, treatment and discharge of process wastewater.

During the year 2024, 3,177,947.0 m^3 of wastewater was treated at the Kakanj Thermal Power Plant at the wastewater treatment plants polluted by suspended matter.
A certain amount of purified water was used for personal needs. Thus, 33,885.0 m^3 was used for spraying the landfill, 59,405.0 m^3 of purified water was used for the ejector evacuation of the coagulator sludge (this water is recirculated back into the purification process).

Sludges created in the production process (coagulator, decarbonisation process, sanitary-faecal water treatment plant, oil and fat separators) are disposed of at the landfill of process products in accordance with the Decision on the Environmental Permit.

The value of the waste water pollution burden was PE 31,659.

Radioactivity monitoring indicators

In 2024, TPP Kakanj conducted an annual monitoring of the level of radioactivity in the production process and in the immediate surroundings of its facilities according to the Rulebook on the Limits of Radionuclides in Food, Animal Feed, Medicines, Items of General Use, Construction Materials and Other Goods Placed on the Market (Official Gazette of BiH,

No. 54/14). The contract was concluded with the Faculty of Veterinary Medicine in Sarajevo. As part of the monitoring, measurements were performed as follows:

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

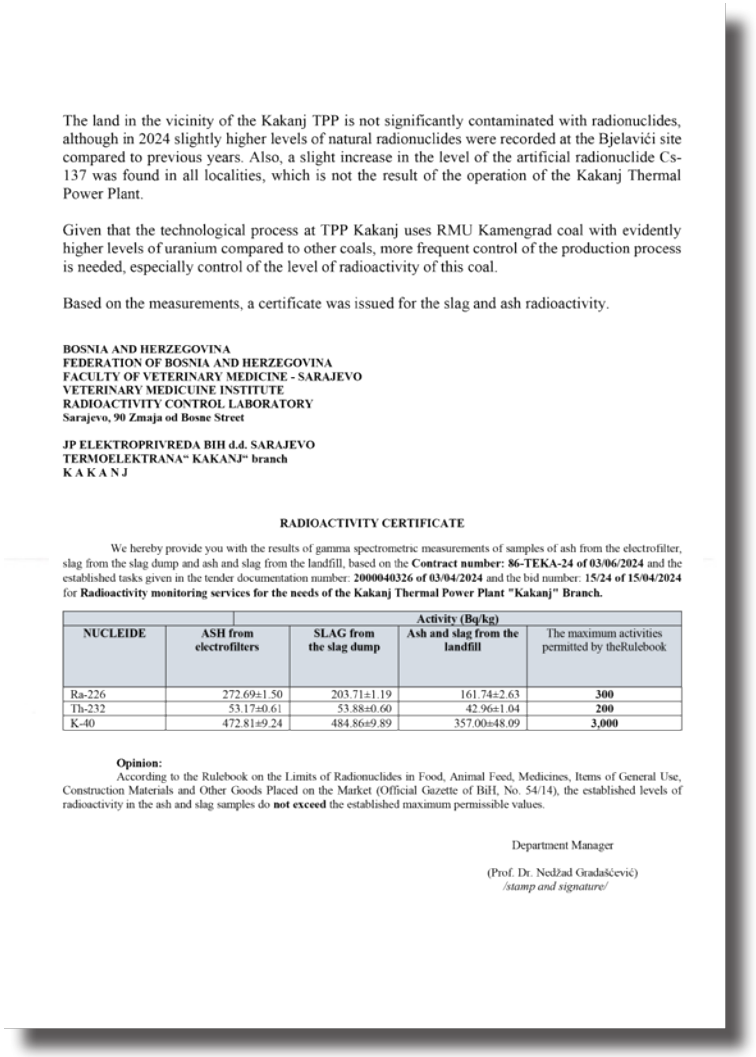
As in previous years, the measurements indicated that TPP Kakanj showed a slight impact on the environment in terms of an increase in technologically conditioned natural radioactivity.

The levels of natural radionuclides (U-235, U-238, Th-232, Ra-226 and K-40) in coal, ash and slag from the plant as well as ash and slag at the slag and ash landfill are within the range of average values for this type of samples, with higher levels of uranium and radium in the coal samples of the company Rudnik mrkog uglja Kamengrad d.d. Sanski Most (hereinafter RMU Kamengrad). The lowest values of test radionuclides were recorded in the coal of the company Rudnik mrkog uglja Banovići d.d. Banovići (hereinafter RMU Banovići).

The land in the vicinity of the Kakanj TPP is not significantly contaminated with radionuclides, although in 2024 slightly higher levels of natural radionuclides were recorded at the Bjelavići site compared to previous years. Also, a slight increase in the level of the artificial radionuclide Cs-137 was found in all localities, which is not the result of the operation of the Kakanj Thermal Power Plant.

Given that the technological process at TPP Kakanj uses RMU Kamengrad coal with evidently higher levels of uranium compared to other coals, more frequent control of the production process is needed, especially control of the level of radioactivity of this coal.

Based on the measurements, a certificate was issued for the slag and ash radioactivity.



The land in the vicinity of the Kakanj TPP is not significantly contaminated with radionuclides, although in 2024 slightly higher levels of natural radionuclides were recorded at the Bjelavići site compared to previous years. Also, a slight increase in the level of the artificial radionuclide Cs-137 was found in all localities, which is not the result of the operation of the Kakanj Thermal Power Plant.

Given that the technological process at TPP Kakanj uses RMU Kamengrad coal with evidently higher levels of uranium compared to other coals, more frequent control of the production process is needed, especially control of the level of radioactivity of this coal.

Based on the measurements, a certificate was issued for the slag and ash radioactivity.

BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FACULTY OF VETERINARY MEDICINE - SARAJEVO
VETERINARY MEDICUINE INSTITUTE
RADIOACTIVITY CONTROL LABORATORY
Sarajevo, 90 Zmaja od Bosne Street

JP ELEKTROPRIVREDA BIH d.d. SARAJEVO
TERMOELEKTRANA" KAKANJ" branch
K A K A N J

RADIOACTIVITY CERTIFICATE

We hereby provide you with the results of gamma spectrometric measurements of samples of ash from the electrofilter, slag from the slag dump and ash and slag from the landfill, based on the **Contract number: 86-TEKA-24 of 03/06/2024** and the established tasks given in the tender documentation number: **2000040326 of 03/04/2024** and the bid number: **15/24 of 15/04/2024** for **Radioactivity monitoring services for the needs of the Kakanj Thermal Power Plant "Kakanj" Branch.**

	Activity (Bq/kg)			
NUCLEIDE	**ASH from electrofilters**	**SLAG from the slag dump**	**Ash and slag from the landfill**	The maximum activities permitted by theRulebook
Ra-226	272.69±1.50	203.71±1.19	161.74±2.63	**300**
Th-232	53.17±0.61	53.88±0.60	42.96±1.04	**200**
K-40	472.81±9.24	484.86±9.89	357.00±48.09	**3,000**

Opinion:
According to the Rulebook on the Limits of Radionuclides in Food, Animal Feed, Medicines, Items of General Use, Construction Materials and Other Goods Placed on the Market (Official Gazette of BiH, No. 54/14), the established levels of radioactivity in the ash and slag samples do **not exceed** the established maximum permissible values.

Department Manager

(Prof. Dr. Nedžad Gradaščević)
/stamp and signature/

Waste management activities

In accordance with the legal requirements, documents of the Environmental Management System and the Waste Management Plan of TPP Kakanj, waste management was constantly monitired at the location of all plants and facilities of TPP Kakanj.

The contract on the disposal of hazardous waste was concluded with the company Delta Petrol d.o.o. Kakanj.

The contract on the purchase of paper and plastic was concluded with the company ALBA d.o.o. Zenica.

The contract for the sale of secondary raw materials was concluded with the company CIBOS d.o.o. Ilijaš.

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

The sale of process products is carried out continuously. The largest quantities are taken by Heidelberg Materials Cement BiH d.d. Kakanj, while Dusper d.o.o. Kakanj and other companies do that in smaller amounts.

Disposal site for process products - Turbići slag and ash landfill

In 2024, TPP Kakanj continued its activities on the development of the Turbići slag and ash landfill. Activities were carried out as follows:

- *part of the landfill was recultivated, with an area of approx. 3.6 ha. (Contract number 243-TEKA-23) and*
- *the road to the village of Slapna Gora was relocated (Contract number 93-TEKA-23).*

HPP on the Neretva River

Air protection activities

In 2024, HPP on the Neretva River (hereafter HEN) conducted a regular annual examination of the emission of pollutants into the air from the stationary source of the boiler plant according to the Law on Air Protection (Official Gazette of FBiH, No. 72/24), the Rulebook on limit values of the emission of pollutants into the air from combustion plants (Official Gazette of FBiH, No. 3/13, 92/17) and the Rulebook on the monitoring of pollutant emissions into the air (Official Gazette of FbiH, No. 9/14 and 97/17). The measurements were made in the manner prescribed by the standard, with three series of measurements each, and the result for all parameters was given, as well as the mean value of the measured concentrations. A Report on the measurement of the emission of pollutants into the air (Number: 333/24, of 08/11/2024) was prepared by the certified company Inspekt-RGH d.o.o. Sarajevo. According to current regulations, all measured indicators meet the criteria for environmentally acceptable operation, i.e. environmental soundness.

Water protection activities

HPP Jablanica

For receiving and treating wastewater from HPP Jablanica's sanitary blocks, a standard biological wastewater treatment device (type SBR_REG_12 with a capacity of 12 PE) was installed on the platform of the machinery compartment. After purification using a mechanical-biological process, waste water is discharged into the Dobrinja River, which flows into the Neretva River.

Sampling of wastewater from the HPP Jablanica plant was carried out twice a year at the point of discharge (May and November). Examination of the wastewater quality and quantity is performed according to the applicable regulations and the measured parameters meet the limit values of waste water emissions that are discharged into the natural recipient in accordance with the Decree on conditions for the discharge of wastewater into the environment and public sewage systems (Official Gazette of FBiH, Nos. 26/20, 96/20 and 1/24).

HPP Grabovica

For the reception and treatment of wastewater from the Grabovica HPP plant from the sanitary blocks and the cafeteria, two standard biological wastewater treatment devices were installed (SBR_REG_12 with a capacity of 12 PE installed on the left bank and SBR_REG_08 with a capacity of 8 PE installed on the right bank of the Neretva River).
Wastewater is discharged directly into the Neretva River after purification using a mechanical-biological process.
Sampling of wastewater from the HPP Grabovica plant was carried out twice a year at the

point of discharge (May and November). Examination of the waste water quality and quantity is performed according to the applicable regulations and the measured parameters meet the limit values of waste water emissions that are discharged into the natural recipient in accordance with the Decree on conditions for discharge of wastewater into the environment and public sewage systems (Official Gazette of FBiH, Nos. 26/20, 96/20 and 1/24).

HPP Salakovac

For the reception and treatment of wastewater from the Salakovac HPP plant, a typical biological wastewater treatment device (type SBR_REG_20 with a capacity of 20 PE) was built, which was placed on a free surface in front of the machinery compartment (dam) on the left bank of the Neretva River.

Wastewater is discharged directly into the Neretva River after purification using a mechanical-biological process.

Sampling of wastewater from the HPP Salakovac plant was carried out twice a year at the point of discharge (May and November). Examination of the wastewater quality and quantity was performed according to the applicable regulations and the measured parameters meet the limit values of wastewater emissions that are discharged into the natural recipient in accordance with the Decree on conditions for the discharge of wastewater into the environment and public sewage systems (Official Gazette of FBiH, Nos. 26/20, 96/20 and 1/24).

Waste management activities

At the HPP on the Neretva River, in accordance with legal requirements, documents of the Environmental Management System and waste management plans of the HPP on the Neretva River, waste management was constantly monitored at the location of all plants. All types of generated waste were collected, selected and temporarily deposited in the temporary waste storage facility of the HPP plant on the Neretva River, as well as in the central temporary waste storage facility of HPP Jablanica.
The contract on the disposal of hazardous waste was concluded with the company C.I.A.K. d.o.o. Sarajevo.
The contract on the sale of secondary raw materials and waste material was concluded with MZ Company d.o.o. Mostar.
The contract on the sale of used oils was concluded with the company Valbih d.o.o. Konjic.
The contract on the removal and disposal of floating deposits from reservoirs was concluded with the company Delta Petrol d.o.o. Kakanj.
Municipal waste is taken over by JKP Jablanica for the area of the Municipality of Jablanica, and for the area of the City of Mostar by J.P. Komunalno d.o.o. Mosta.

Renewable Energy Sector

Sarajevo Plant

The Sarajevo plant is responsible for the management of mHPP Osanica 1 - Ustikolina and HPP Bogatići - Trnovo RS (the part belonging to JP EPBiH is 28%).
By decision of FERK (Document number: UP1-06-13-1-24-5/23, of 04/11/2022), a permit for the production of electricity was issued for the Bogatići HPP plant. Also, the status of a qualified producer in the HPP Bogatići facility was determined in the period 01/01/2023 – 1/12/2038.

Water protection activities

mHPP Osanica 1 holds a Water Permit Decision (Document number: UP-1:04-21-926/22 of 22/12/2022) issued by the Ministry of Economy of Bosnian-Podrinje Canton - Goražde.

Monitoring of mHPP Osanica 1 is carried out in accordance with technical recommendations, adopted experiences for the operation of facilities of this type and purpose, as well as the method of maintenance of the facility. All activities and observations are recorded in books. In case of unforeseen situations, which may endanger the operation of the facility, additional activities shall be taken in accordance with the internal intervention plan.

At mHPP Osanica 1, the Osanica river bed was regularly cleaned and water intake maintained. Approximately 25 kg of floating waste was collected and disposed of in an environmentally acceptable manner.

Revitalisation of mHPP Osanica 1 from the aspect of reducing potential negative impacts on the environment is foreseen in the multi-year Plan. Maintenance of plant equipment and devices takes place through current and investment maintenance.

As part of current maintenance, the reconstruction of the system for automatic water level monitoring in the sand trap was realised on 28/08/2024 by the company Automatika d.o.o.

Živinice.

Testings the correctness of the automatic fire detection and alarm system by the company Vatroteh inženjering d.o.o. Sarajevo, was realised on 1 October 2024, in accordance with the Record on performed periodic inspections, measurements and tests.

Procurement procedure, monitoring and maintenance of oil pits and oil catchers has been fully realised. The framework agreement was concluded in October 2024 and the first individual contract was concluded in December 2024 with the company Kemeko-BH d.o.o. Lukavac. Also, the procedure for procurement of the oil pits reconstruction service was initiated.

During 2024, the company Winner project d.o.o. Sarajevo has started monitoring the recording of the ground water condition at previously made boreholes in the Bogatići locality - a total of 15 measurements during twelve (12) months. The final report is expected in the first quarter of 2025, which will make the basis for the "input" parameters for the development of the preliminary and main designs of landslide rehabilitation in this locality.

Bihać Plant

The Bihać plant is responsible for the management of HPP Una Kostela, HPP Krušnica and HPP Bihać.

By decision of FERK (Document number: UP1-06-13-1-64-18/22 of1/12/2022), a permit for the production of electricity was issued for the Una Kostela HPP, Krušnica HPP and Bihać HPP plants. Also, the status of a qualified electricity producer in the HPP Una Kostela facility was determined in the period 01/01/2023 – 31/12/2038. By decision of FERK (Document number: UP1-06-13-1-24-5/23 of 11/04/2023), mHPP Bihać and mHPP Krušnica received the status of qualified electricity producer. The work permit for the production of electricity referred to in this Decision is valid until 31/12/2038.

The regular annual audit of HPP Una Kostela was carried out in accordance with the Plan for the Annual Audit of Equipment in Electricity Production Plants. The work on the annual revision of equipment and aggregates at HPP Una Kostela was carried out in the period 29/07/2024 – 13/09/2024.

Overhaul of aggregate number 2 in the Krušnica mHPP, planned for 2023, due to favourable hydrological conditions, was realised in 2024. As part of the overhaul, the acoustic control of the aggregate's operation, monitoring of operating temperatures, control of the opening/closing ratio of the impeller and the conducting device, and monitoring of other parameters of the work process were carried out.

Water protection activities

HPP Una Kostela holds a Water Permit Decision (Document number: UP-1/21-3-40-537-7/22 of 03/03/2023) issued by the Sava River Basin Agency. After intervention on the issued Decision, the Sava River Basin Agency issued a Decision on amending the decision on the water permit (Document: UP-1/21-3-40-537-16/22 of 28/12/2023).

mHE Bihać obtained a new Decision on the water permit (Document number: UP-1/21-3-40-535-5/23 of 05/01/2024) issued by the Sava River Basin Agency.

The monitoring of the water management facility is performed in accordance with technical recommendations, adopted experiences for the operation of facilities of this type and purpose, as well as in accordance with the facility maintenance methods. The staff of the power plant, as well as the facility security officers, are responsible for the daily observation and visual inspection of the water management facility. All activities and observations are recorded in books. In the event of unforeseen situations that may endanger the facility operation, additional activities shall be taken in accordance with the internal intervention plan.

Control over the inflow and use of water in HPP Una Kostela serves for the programme running of the water management facility, and thus the measurement of the water level at the entrance building. This method ensures and maintains an acceptable flow (water management minimum) at the dam of 2 m3/sec, in conditions of a lower flow of the Una River than the installed flow of the power plant of 88 m3/sec. These measurements and data monitoring are performed non-stop, electronically with the help of installed measuring probes on the water intake, water chamber and bottom water. There is also a visualisation of the flow through the river Una and the inflow of water through the tunnel towards the turbines, whereby the operator of the power plant has a constant view of these quantities and their influence on the water regime. The monitored and obtained data are entered daily in the Flow Book.

Taking into account the laboratory analyses of the Una River water quality in the area of

the plant, it can be concluded that the concentration of hydrogen ions pH ranges from 7.2 to 7.8, the content of O2 dissolved in 1 l of water ranges from 4.8 to 10.7 ml/l and increases upstream.

The Krušnica mHPP has a water monitoring system, as does the Bihać mHPP, which monitors water levels upstream and downstream of the plant.

Tuzla Plant

The Tuzla plant is responsible for the management of the Modrac mHPP - in Lukavac, the installed capacity, and the Sniježnica mHPP - in Teočak.

Water protection activities

mHE Modrac holds a Water Permit Decision (Document number: 04/1-11-21-10882/22 of 25/04/2022), issued by the competent Ministry of Agriculture, Forestry and Water Management of Tuzla Canton, valid for 5 (five) years, until 25/04/2027.

Decision on the water permit for the needs of the Sniježnica dam water facility in Sniježnica, Teočak municipality, 400 kW mHE, installed at the middle outlet of the Sniježnica dam and the Sniježnica reservoir, formed on the territory of the Teočak and Sapna municipalities (Document number: 04/2-13-21-35177-1/23 of 21/10/2024), issued by the competent Ministry of Agriculture, Forestry and Water Management of Tuzla Canton, with a validity period of 5 (five) years, i.e. until 21/10/2029.

Notice that an environmental permit is not needed for the Sniježnica mHPP (Document number: 12/1-19-034549/24 of 30/10/2024 is issued by the competent Ministry of Physical Planning and Environmental Protection of Tuzla Canton.

The Ministry of Agriculture, Forestry and Water Management of Tuzla Canton has issued a Decision on the water permit for the Sniježnica dam water facility in Sniježnica, municipality of Teočak, mHPP with a capacity of 400 kW, installed at the middle outlet of the Sniježnica dam and the Sniježnica reservoir, formed in the area of the municipalities of Teočak and Sapna (Document number: 04/2-13-21-35177-1/23 of 21/10/2024).

Elektrodistribucija Sarajevo

Waste management activities

As part of Elektrodistribucija Sarajevo (hereafter ED Sarajevo), after construction, reconstruction and obtaining the necessary permits, warehouses for temporary waste storage in Azići (Sarajevo Canton) and Vitkovići (Bosnian-Podrinje Canton of Goražde) are in operation.

According to the relevant ministry, reporting on the fulfilment of the requirements of the waste management license for the warehouse facility for the temporary storage of waste in Azići is performed continuously.

Since 2021, ED Sarajevo has been registered in the Information System of Waste Management of the Federation of Bosnia and Herzegovina, and it enters data on the generated waste within the legally prescribed deadline.

The first individual contract for hazardous waste disposal service under the framework agreement was concluded with the company Kemeko-BH d.o.o. Lukavac for the period 2023-2025.

The contract for the sale of waste collected by ED Sarajevo was concluded in May 2024 with the company Fajem d.o.o. Zenica for a period of eighteen (18) months. The contract for the sale of secondary raw materials and waste materials was concluded in October 2024 with the company Trgosirovina d.o.o. Sarajevo for a period of eighteen (18) months.

In 2024, ED Sarajevo handed over discarded electrical and electronic equipment four (4) times for processing and disposal to the operator of the electrical and electronic waste management system, the company ZEOS Eko-sistem d.o.o. Sarajevo. The collectors, authorised by the system operator, were Kemeko-BH d.o.o. Lukavac and Harex d.o.o. Sarajevo.

During 2024, the implementation of the project Environmentally acceptable management of persistent organic pollutants (POPs) in the industrial and waste management sectors in Bosnia and Herzegovina continued through the UNEP project, Child 1.1 Reduction of pollution from harmful chemicals and waste in Mediterranean hotspots and monitoring of progress towards achieving goals, financed by the GEF Mediterranean Sea Programme (MedProgram): Ensuring environmental protection. Within the framework of the referenced project, the branch reported equipment containing PCBs for disposal. In September 2024,

a representative of the UNEP agency once again visited the Azići Temporary Waste Storage Facility, where the equipment registered for disposal is located. They estimate that the takeover of the equipment should be in the first half of 2025.

In 2024, the procurement procedure for environmental protection (absorbents) was implemented. The contract was concluded in December 2024.

At mHPP Osanica 1, the Osanica river bed was regularly cleaned and water intake maintained. Approximately 25 kg of floating waste was collected and disposed of in an adequate manner.

In the period January - March 2024, 349 employees, of which 310 employees of the Branch, 6 employees of the ICT Sector of the Company's Directorate, 4 employees of the Electricity Production Activities of the Sarajevo Plant and 29 employees of the Supply Activities of the Sarajevo Supply Area, were periodically familiarised with all the prerequisites for the functioning of the waste management system and implemented improvements in relation to the previous training from 2021.

Elektrodistribucija Tuzla

Water protection activities

Elektrodistribucija Tuzla (hereafter ED Tuzla) performed a water quality test at the outlet of two separators in the business compound at the location of Mitra Trifunović Uče, Tuzla (twice a year). All measured parameters are within the allowed limit values.

Waste management activities

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

The oil catchers (separators) are continuously monitored, serviced and maintained as necessary, and the resulting sludge is disposed of in accordance with legal regulations.
Regular monitoring of the implementation of environmental protection measures was implemented in the field, in addition to the monitoring of the implementation of occupational health and safety measures, for the purpose of preventive action and preventing the occurrence of pollution and inadequate waste handling;
Procurement of a new container for paper completed in January 2024.

Elektrodistribucija Zenica

Waste management activities

In November 2024, 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 branch), with the issuance of the accompanying sheet for electrical and electronic waste (lead batteries - 802 kg) number: 01-1/24 dated 28.11.2024. year.

In 2024, there was no sale of secondary raw materials, waste materials, nor was there delivery of waste transformer oil in the Public Company Elektroprivreda BiH d.d.-Sarajevo, "Eletrodistribucija" branch.

The sale of secondary raw materials and waste materials is planned for 2025.

Elektrodistribucija Bihać

Activities in the field of waste management

In 2024, Elektrodistribucija Bihać (hereafter ED Bihać) continued with the construction of a warehouse for temporary waste disposal. The Contract for the service - Development of design documentation for the waste warehouse at the location of the EDBI Central Warehouse in Bihać has been concluded. On the basis of the preliminary design received, a request for urban planning approval was submitted to the Urban Planning and Construction Service of the City of Bihać.

On the basis of the request of the Sava River Basin Agency, activities were initiated on the preparation of the Study for the previous water consent.

Elektrodistribucija Mostar

AktivnWater protection activities
In accordance with the regulations, Elektrodistribucija Mostar (hereinafter ED Mostar), continuously supervises the correctness of the oil pits in the brick substations 35/10 kV and 20(10)/04 kV and, if necessary, intervenes on them.

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

4. FISH STOCKING

HPP on the Neretva River (HEN)

In 2024, HEN planned funds for the realisation of the obligation to procure fish fry/fish for the purposes of stocking the fishing areas of Prozor-Rama, Konjic, Jablanica and Mostar in accordance with Article 35 of the FBiH Law on Freshwater Fisheries (Official Gazette of FBiH, No. 64/04). Considering the specificity of this type of procurement, the significant difficulties in the realisation of the procurement of fish fry/fish in the past years, and in order to more efficiently realise the procurement, in accordance with the position of the BiH Public Procurement Agency, JP EPBiH prepared and issued internal Instruction U 82/02 - Procurement exempted from the application of the Law on Public Procurement.
The branch of HPP on the Neretva, Jablanica, did not procure fish fry/fish for the purpose of stocking the fishing areas of Prozor-Rama, Konjic, Jablanica and Mostar in 2024 due to the failure of the fishing associations, as beneficiaries of fishing rights, to submit the consent of the Federation Ministry of Agriculture, Water Management and Forestry to the annual fisheries improvement programmes for 2024.
According to Article 10 of the FBiH Law on Freshwater Fisheries ("Official Gazette of FBiH", No. 64/04), "...Consent for the fishing basis and annual programmes, with the previously obtained opinion of the cantonal ministry, is certified and issued by the Federation Ministry of Agriculture, Water Management and Forestry."

The Branch addressed the aforementioned associations with a Request for the delivery of all necessary documents according to Article 10 of the Law on Freshwater Fisheries, in order to procure fish fry/fish, i.e. to carry out fish stocking (Annual programme for the year 2024, Opinion of the Cantonal Ministry and Consent of the Federation Ministry of Agriculture, Water Management and Forestry to the annual programme). All the mentioned associations stated in their response to the Request that they did not receive the consent of the Federation Ministry of Agriculture, Water Management and Forestry to the annual programmes.
JP EP BiH sent a letter to the competent Ministry with an inquiry about further action regarding the process of procurement of fish fingerlings/fish for stocking, respecting the necessary documentation defined by the Law in question. JP EP BiH did not receive a response from the competent Ministry.

Considering that the conditions according to Article 10 of the Law were not met, i.e. that the associations, as users of fishing rights, did not secure the consent of the Federation Ministry on the annual programmes for the year 2024, the Branch did not carry out the procedure for the procurement of fish fry/fish for stocking for the year 2024.

ED Sarajevo

The annual fish stocking of the Osanica River in Goražde (mHPP Osanica 1 facility) was carried out according to the signed Contract.

ED Tuzla

According to the Fisheries Foundation of the Fishermen's Association, the Sniježnica hydro-accumulation was stocked with the necessary quantity and type of fish fry/fish.

ED Bihać

With the aim of fulfilling the obligations from the Agreement on the Improvement of the Fish Stock in the Una River Basin (Document No.: 01-02-32933/19 of 07/11/2019), the Agreement on the Improvement of the Fish Stock in the Krušnica River Basin (Document No.: 01-1898/09 of 12/08/2009), the legal obligations prescribed by the FBiH Law on Freshwater Fisheries (Official Gazette of the FBiH, No. 64/04), and annual programmes on the improvement of fisheries for the year 2024:

- *Annual programme on the improvement of fisheries of the USR Una, Bihać for the year 2024, Fishing area 4. fishing zone 4.2. number: 31/23 of 22/11/2023,*
- *Annual programme 2024 for Fishing area 5. Fishing zone 5.1. – Krušnica number: 253-2911/2023 of 28/11/2023.*

Stocking of the Una and Krušnica rivers is underway.

The obligation based on the Agreement on the improvement of the fish stock in the Krušnica river basin is a participation of 60% in the annual stocking of the Krušnica river basin, which is proportional to the estimated damage caused to the natural balance of that ecosystem and fish stock by the operation and maintenance of the Krušnica HPP Bosanska Krupa.

The obligation based on the Agreement on the Improvement of the Fish Stock in the Una River Basin from November 2019 is the financing of the stocking of the Una River in the amount of 90,000.0 pieces of brook trout fry aged equivalent to length of 10-15 cm during the period of legal validity of the Fishery Basis of 5 (five) years (2020-2024).

In the previous period, from the level of JP Elektroprivreda BiH d.o.o. Sarajevo, activities were conducted to establish uniformity during the implementation of stocking procedures.

5. PRODUCED QUANTITIES OF WASTE WITHIN THE FRAMEWORK OF JP EPBIH

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

Total collected waste has been handed over to authorised operators for its collection, transport, treatment and export, until its final disposal.

Non-hazardous waste

A total of 1,689.4 t of non-hazardous waste was produced within the framework of JP EPBiH.

TPP Tuzla produced 744.8 t, TPP Kakanj 519.8 t, and HPP on the Neretva 53.3 t.

ED Sarajevo, ED Tuzla, ED Zenica, ED Travnik, ED Bihać and ED Mostar produced a total of 371.5 t.

Process products (slag and ash) from the production process

The total amount of process products produced in TPP Tuzla and TPP Kakanj is 1,210,733.0 t, of which 724,885.0 t were delivered, and the rest was disposed of at process product landfills.

Hazardous waste

The total amount of hazardous waste of JP EPBiH is 79.2 t.
24.9 t were produced in TPP Tuzla, 18.8 t in TPP Kakanj and 21.9 t in HPP on Neretva.
ED Sarajevo, ED Tuzla, ED Zenica, ED Travnik, ED Bihać and ED Mostar produced a total of 13.5 t.

6. USE OF TRANSFORMER OIL IN ELECTRICITY DISTRIBUTION COMPANIES

ED Sarajevo

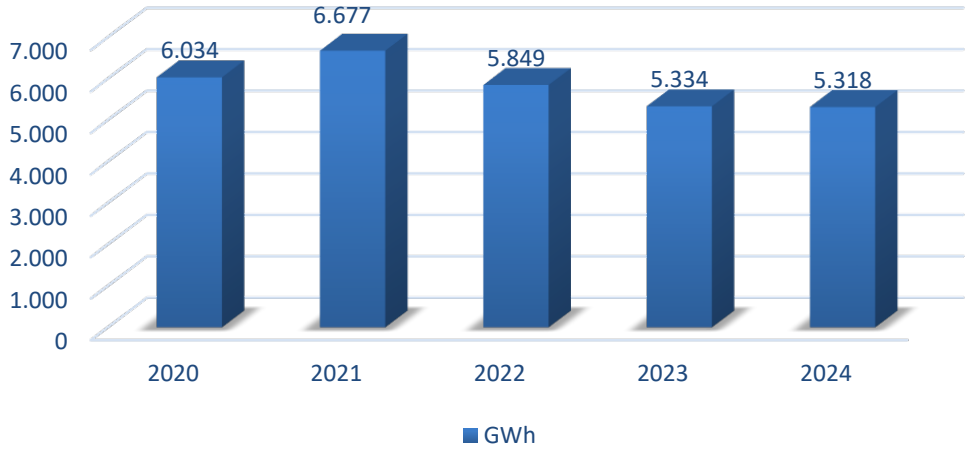
In the course of the process of regular overhaul and maintenance of transformer stations and transformers, in the area of Sarajevo Canton and Bosnian-Podrinje Canton - Goražde, in 2024, 4,713.0 kg of non-chlorinated insulating oil and mineral oil-based heat transfer oil were consumed (in 2024, more oil was consumed by 48.2% compared to 2023).

ED Bihać

In the course of the regular process, i.e. the maintenance of transformers and low-oil circuit breakers within the OMiP Sector, electroinsulating transformer oil was replenished, and 803.0 l was consumed, which is at the level of last year's consumption (approx. 0.37% more compared to 2023). Engine hydraulic oils and antifreeze are used in the Transport Service. In new vehicles, which are regularly serviced, the oil is changed in an authorised service centre. The oil change in working machines is also done in the service centre. Used oil is temporarily stored and also prepared for final disposal. There were no recorded cases of uncontrolled oil spills.
Biodegradable hydraulic oils (HD 68) and greases (LIS 2) were used in the activity of production of electric energy, Bihać plant, as part of the production and maintenance process of energy plants in hydroelectric power plants.

7.TREND OF ENVIRONMENTAL IMPACT INDICATORS FOR THE PERIOD 2020 - 2024

Chart 2. Total production of electricity in the facilities of JP EPBiH for the period 2020 - 2024 (GWh)



TPP Tuzla and TPP Kakanj

Chart 3. Electricity production in TPP Tuzla and TPP Kakanj for the period 2020-2024 (GWh)

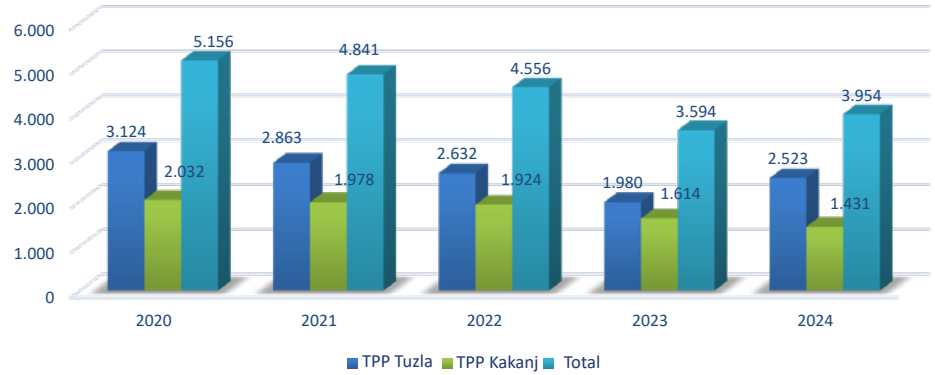


Chart 4. Coal consumption at TPP Tuzla and TPP Kakanj for the period 2020 – 2024 (t)

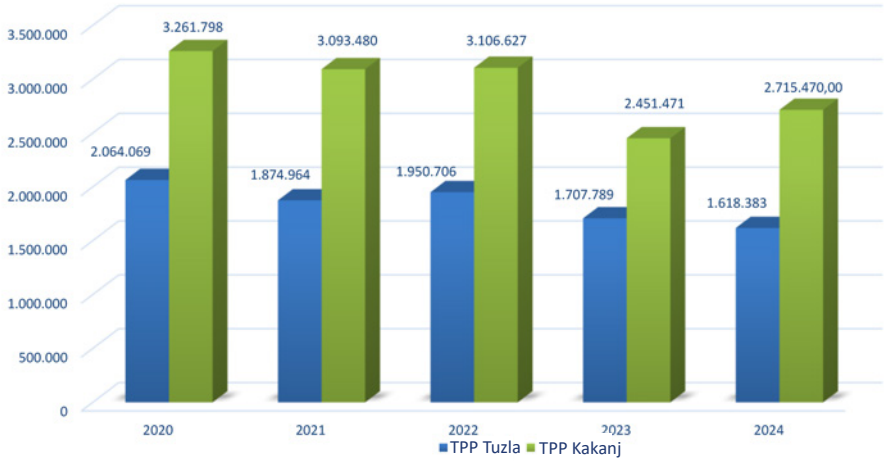


Chart 5. SO_2 emissions from TPP Tuzla and TPP Kakanj for the period 2020 – 2024 (t)

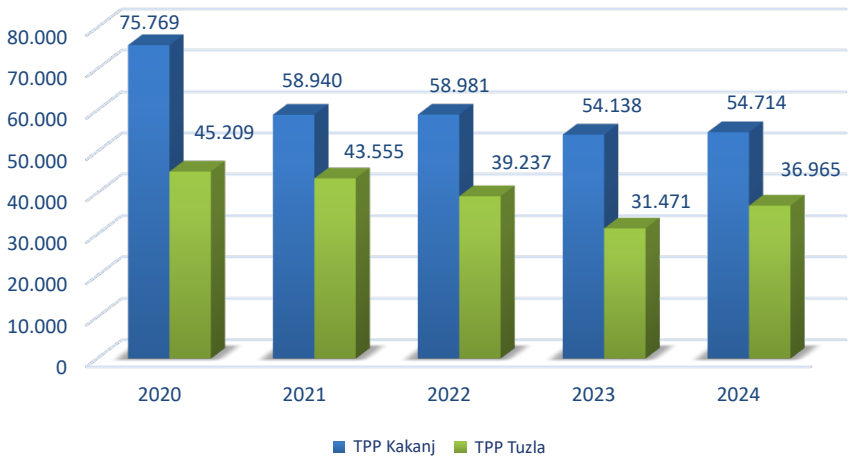


Chart 6. NOx emissions from TPP Tuzla and TPP Kakanj for the period 2020 – 2024 (t)

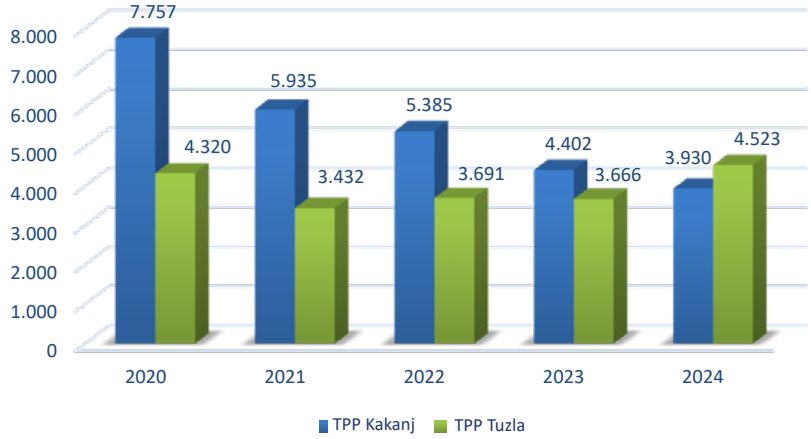


Chart 7. Emissions of solid particles from TPP Tuzla and TPP Kakanj for the period 2020 – 2024 (t)

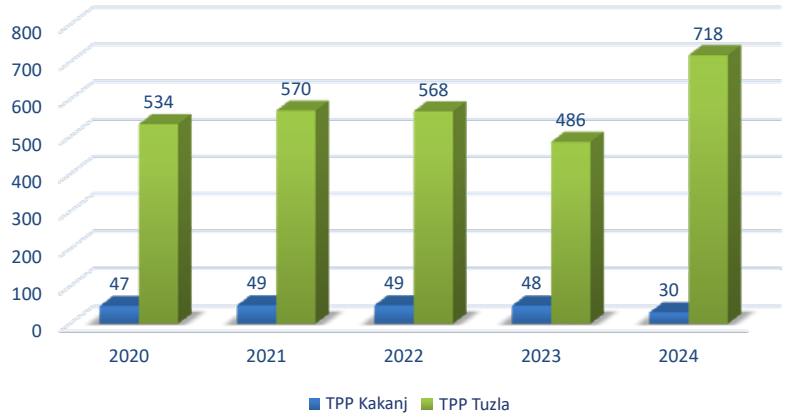


Chart 8. CO_2 emissions from TPP Tuzla and TPP Kakanj for the period 2020 - 2024

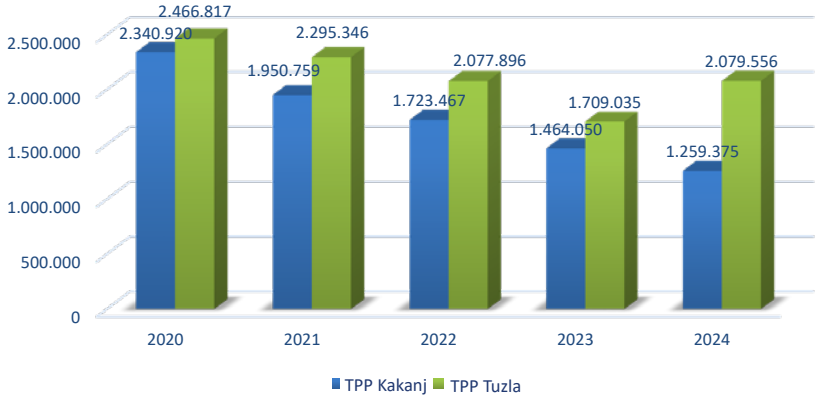


Chart 9. Total amount of non-hazardous and hazardous waste in TPP Tuzla and TPP Kakanj for the period 2020 - 2024 (t)*

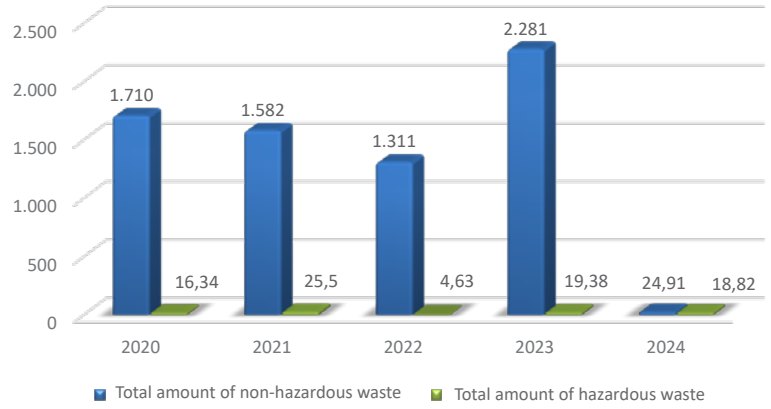
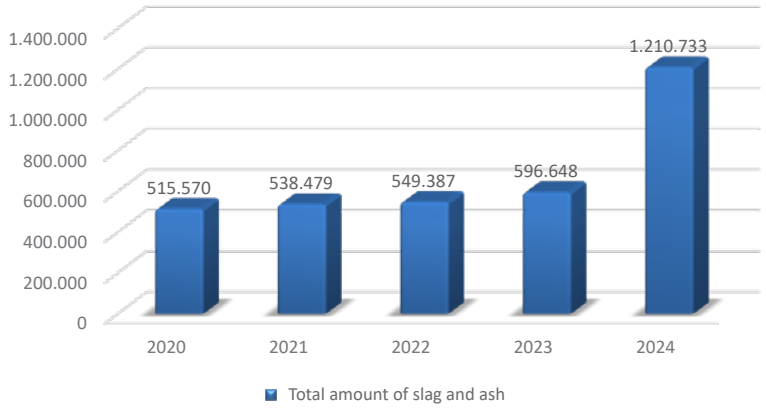


Chart 10. Total amount of slag and ash delivered to TPP Tuzla and TPP Kakanj for the period 2020 - 2024 (t)



Hydropower plants on the Neretva River

Chart 11. Production of electricity in hydropower plants on the Neretva River for the period 2020-2024 (GWh)

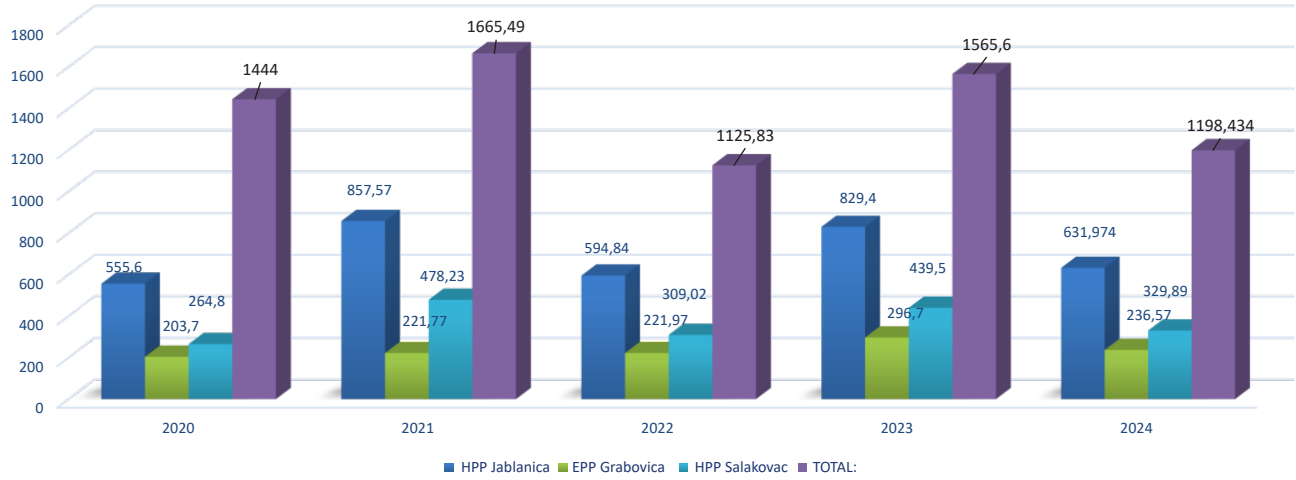
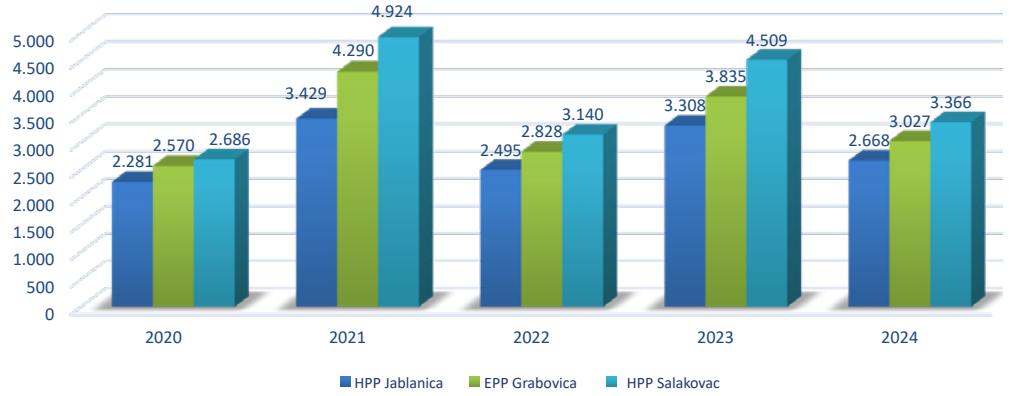


Chart 12. The amount of water used for the production of electricity in hydropower plants on the Neretva River for the period 2020 - 2024 (millions of m³)



Electricity distribution companies

Chart 13. Total amount of non-hazardous and hazardous waste in hydropower plants on the Neretva River for the period 2020 - 2024 (t)*

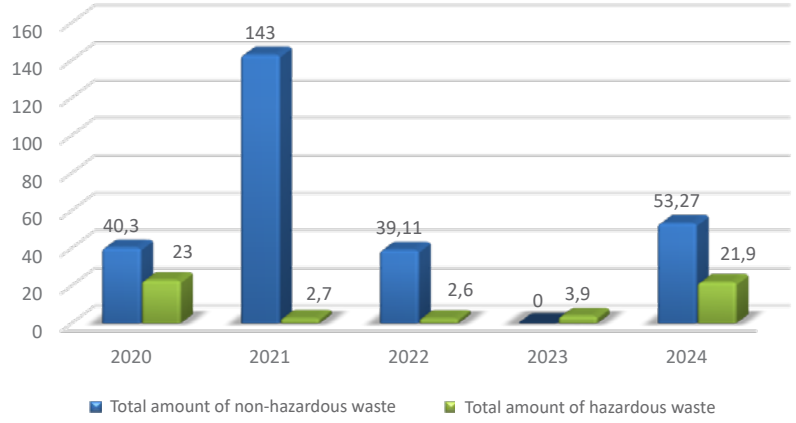
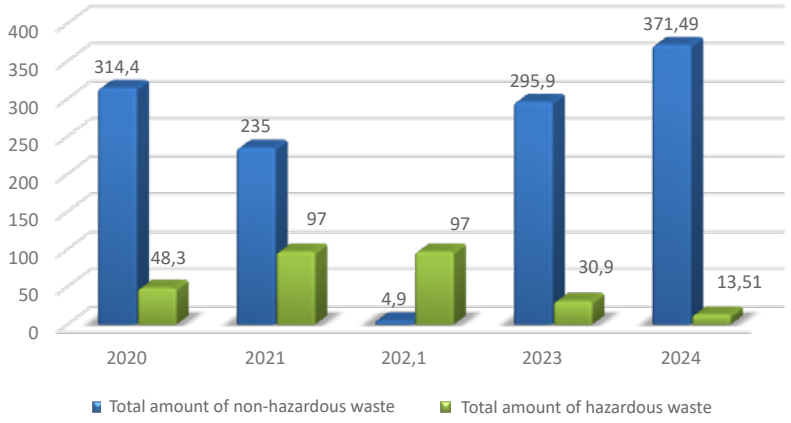


Chart 14. Total amount of non-hazardous and hazardous waste in electricity distribution companies: Sarajevo, Tuzla, Bihać, Zenica, Travnik and Mostar, for the period 2020 - 2024 (t)*



8. IMPLEMENTATION OF ENVIRONMENTAL AND WATER PERMIT CONDITIONS

Thermal power plants

TPP Tuzla and TPP Kakanj implement all measures required by valid environmental and water permits, as part of their regular business activities.

TPP Tuzla

Implementation of environmental permit conditions

TPP Tuzla has a legally binding Decision on the environmental permit (Document number: UPI 05/2-02-19-5-242/21 MK of 01/08/2022) issued by the Federation Ministry of the Environment and Tourism. In order to implement the conditions of the Environmental Permit, TPP Tuzla produced an Action Plan.

The environmental permit stipulates:

- *general measures for the protection of air, soil, water, flora and fauna,*
- *measures to prevent and minimise air emissions,*
- *measures to prevent and minimise the generation of waste and*
- *measures to prevent environmental pollution by dumping process products at a landfill.*

The following is extracted from those prescribed:

- *continuously controls the quality of purchased coal and liquid energy sources,*
- *realised purchases of heating oil (ignition fuel) with sulphur content up to max. 1%,*
- *regularly maintained electrofilters and serviced pollutant emission meters,*
- *the process of burning coal was continuously monitored and the data on the measurement of emissions into the air were analysed and the corrective actions taken,*
- *in accordance with the possibilities realised improvement of operational management and maintenance of plants and facilities,*
- *the frequency of control and preventive technical inspections of the plant has increased,*
- *continuously carries out selective collection and final disposal of waste,*
- *measurement of radioactivity of slag, ash, coal and monitoring of air quality at the Jezero and Divkovići landfills,*
- *carried out geodetic recording of the filling of the Jezero landfill and realised soil monitoring at the Jezero and Divkovići landfills,*
- *determination of the burden of wastewater pollution, expressed through the population equivalent (PE),*
- *selected bidder (in the prequalification process) for the construction of the flue gas desulphurisation plant on block 6,*
- *completed preparation of the Preliminary Design for the implementation of the project Construction of Wastewater Treatment Plant in TPP Tuzla and an expert review of it was performed,*
- *conducted recertification audit according to the requirements of the ISO 9001:2015 and ISO 14001:2015 standards,*
- *started activities on the introduction of the Energy Efficiency System according to the BAS EN ISO 50001:2018 standard,*
- *Divkovići landfill recultivation design completed.*

The decision on the environmental permit stipulates that TPP Tuzla can burn used mineral oils (I and II category oils produced during the maintenance process of TPP Tuzla plant), which meet the requirements of heating oil and fuel oil installations, in the boilers of the Thermal Power Plant.

In accordance with the applicable regulations, all the necessary reports have been submitted to the competent institutions (Monthly report on the validation of measurement data of emissions of pollutants into the air, Annual report on continuous emission measurements, Report on the amount of waste generated (application of the Environmental Fund), Report on the verification of the correctness of monitoring in accordance with AST-BAS EN 14181 and QAL2-BAS EN 14181, entry of required data into the PRTR application for FME&T, Report on extraordinary measurements of emissions into the air, Report on radioactivity in the production process and in the immediate vicinity of TPP Tuzla, Report on analyses of soil, water... The FME&T was continuously informed about significant changes in the plant operation.

Implementation of the water permit conditions:

- *The Preliminary Design for the treatment of all wastewater has been completed and an expert review of it has been carried out,*
- *a request was submitted for obtaining urban approval for the construction of wastewater treatment facility,*
- *An environmental permit for the construction of wastewater treatment facility is not required based on FME&T letter No. 05/02-19-651/24,*
- *based on the decision of the Directorate of the Company JP EPBiH, the activities of the*

preparation of the Main Design and the construction of the plant were separated. The preparation of the terms of reference for the initiation of the procurement procedure for the development of the Main Design is in progress.

TPP Kakanj

TPP Kakanj has a valid Environmental Permit Decision (Document number: UPI 05/2-02-19-5-185/21 MK of 22/08/2022) issued by the Federation Ministry of Environment and Tourism. After receiving the decision, an expert team was appointed to monitor the implementation of the obligations arising from the permit.

The environmental permit stipulates:

- *general measures for the protection of air, soil, water, flora and fauna,*
- *measures to prevent and minimise air emissions,*
- *measures to prevent and minimise the generation of waste, and*
- *measures to prevent environmental pollution by dumping slag and ash at the landfill.*

The following is extracted from those prescribed:

- *wetting the landfill of process products as necessary,*
- *wetting of coal depots carried out as needed,*
- *hybrid filters blocks 5, 6 and 7 maintained in full function,*
- *regularly maintained dedusting system on ash silos,*
- *prepared and revised the main design of the landfill,*
- *completed construction of the road across the landfill to Slapna Gora, with drainage,*
- *completed recultivation of the landfill area where the disposal of process products has been finished permanently,*
- *implemented preventive measures from the Plan for the Prevention of Major Accidents,*
- *regularly serviced pollutant emission gauges,*
- *regularly analysed coals,*
- *continuously monitored coal combustion process in boilers,*
- *continuously monitored operation of hybrid filters, as well as bag filters on ash silos,*
- *regularly monitored data on the measurement of air emissions,*
- *implementation of quality control of coal and liquid energy products,*
- *maintenance of the target air emission parameters was carried out, control of the sulphur content in the purchased coal and liquid fuel for kindling was performed,*
- *realised purchases of heating oil (kindling fuel) with a sulphur content of up to 1%,*
- *in accordance with possibilities, partially implemented improvement of operational management and maintenance of plants and facilities - where priority is given to regimes and production units with lower emission of pollutants into the air,*
- *regularly monitored operation of hybrid filters,*
- *the ash silo dedusting system was reconstructed,*
- *regularly maintained cooling and lubrication systems on the turbo units of blocks 5, 6 and 7,*
- *regularly maintained transformer oil wells,*
- *noise level measurement was carried out in order to monitor and control the impact of noise, according to the BAS ISO 17025:2005 standard and the provisions of the Law on Noise Protection, and the noise evaluation is carried out according to the international standards ISO 1996/1, 1996/2 and 1996/3, BAS ISO 9612 and BAS EN 60804.*

In accordance with applicable regulations, all necessary reports have been submitted to the competent institutions (Environmental Report, Annual Report on Continuous Emission Measurements, Emissions Report with Calculation of the Amount of Compensation to the Environmental Fund, Report on Amounts of Waste Generated, Report on Used Oils, Report on Waste Generated - Environmental Fund Application, PRTR Report, Report on Extraordinary Air Emission Measurements and Report on Noise Measurements)

Implementation of the water permit conditions:

- *submitted Report to the Sava River Basin Agency and the FME&T on the implementation of the planned activities from Annex B of the Decree,*
- *continuously monitored the work of TOV,*
- *implemented corrective action to reduce the consumption of raw water and the quality characteristics of discharged wastewater within design or permitted limits,*
- *realised optimisation of raw water consumption for slag quenching (regulation of raw water pump capacity),*
- *waste water from the chemical water treatment plant directed to the waste water treatment plant,*
- *monitored technological wastewater quality parameters,*
- *monitored quality parameters of technological wastewater,*
- *in order to reduce the temperature of the discharged treated water, the cooling tower number 15 of the cooling system of blocks 5 and 6 was reconstructed,*
- *reconstructed wastewater supply channels in PS 1 and PS 2,*

- *two sludge settling tanks from the sludge thickener at the landfill were built and put into operation,*
- *built system for the drainage of atmospheric water from the surface of the landfill for treatment,*
- *the EBS measurement was performed,*
- *analysed quality of discharged water (treated wastewater, sanitary wastewater, water from Slapnički Potok, water from the separator and water from the precipitator -Hrasno).*

Hydropower plants on the Neretva River

The environmental permits for the plants of HPP Jablanica, HPP Grabovica and HPP Salakovac expired on 27 June 2024. At the request of the Branch and in accordance with the Law on Environmental Protection (Official Gazette of FBiH, No. 15/21) and the Decree determining plants and facilities that must have an environmental permit (Official Gazette of FBiH, Nos. 5/21 and 74/22), FME&T issued an Opinion that the plants within the Branch of HPP on the Neretva River - Jablanica are not obliged to obtain environmental permits - Opinion on the need to issue an environmental permit (Document number: 05/2-19-5-714/24 of 26/09/2024).

The Adriatic Sea Watershed Agency has issued water permits for the facilities:

- *HPP Jablanica plant (Document number: UP/40-1/21-4-38-3/21 of 17/07/2023),*
- *HPP Grabovica plant (Document number: UP/40-1/21-4-39/21 of 02/09/2022),*
- *HPP Salakovac plant (Document number: UP/40-1/21-4-40/21 of 02/09/2022).*

The Neretva HPP regularly conducts activities on the analysis of environmental requirements, as follows:

- *water quality protection,*
- *air quality protection,*
- *waste management,*
- *minimising negative impacts produced by noise,*
- *minimising the negative impact on flora and fauna.*

Monitoring

As for the waste water monitoring, the following activities have been implemented:

- *Report on testing (monitoring) of waste water for the Jablanica HPP operation, number: 877A/24 dated 14/05/2024,*
- *Report on testing (monitoring) of waste water for the Jablanica HPP operation, number: 2255/24 dated 05/11/2024,*
- *Report on testing (monitoring) of waste water for the Grabovica HPP operation, number: 878A/24 dated 14/05/2024,*
- *Report on testing (monitoring) of waste water for the Grabovica HPP operation, number: 2256/24 dated 05/11/2024,*
- *Report on testing (monitoring) of wastewater for the Salakovac HPP operation, number: 879A/24 dated 14/05/2024,*
- *Report on testing (monitoring) of wastewater for the Salakovac HPP operation, number: 2257/24 dated 05/11/2024.*

Water regime monitoring;

- *The work unit for energy affairs and operational management continuously monitors the water regime throughout the year.*

9. ENVIRONMENTAL MANAGEMENT SYSTEM

TPP Tuzla

In the first quarter of 2024, TPP Tuzla successfully conducted internal audits of the IMS-integrated management system (quality and environment). The recertification audit, which was performed by the Institute for Certification of Systems, ICS d.o.o. Sarajevo, was successfully completed in the period from 16 to 19 August 2024. In the Audit Report, ICS confirmed that the recertification of the integrated business quality and environmental management system at TPP Tuzla was approved, according to the requirements of the ISO 9001:2015 and ISO 14001:2015 standards.

During 2024, preparatory activities for the introduction of the Energy Efficiency System according to the BAS EN ISO 50001:2018 standard were performed in the Service.

TPP Kakanj

In June 2024, within the framework of regular certificate maintenance activities, TPP Kakanj, ensured the implementation of a supervisory audit according to the requirements of Standard BAS EN ISO 14001:2017: Environmental management system - Requirements with instructions for use.

The supervisory audit was carried out by TUV NORD Adriatic d.o.o. Zagreb.
After the supervisory audit, the certification company extended the duration of the certificate until 24 August 2026.

Hydropower plants on the Neretva River

HPP on the Neretva River prepared the Integrated Management System Improvement Programme (IMS) for 2024, based on which the following activities were carried out:

- *An internal audit was carried out in all plants/sectors as of December 2024,*
- *An analysis of the environmental aspects related to the electricity production process in plants/sectors was performed in the month of November 2024.*
- *The assessment of work compliance with legal and other environmental requirements is planned to be carried out in March 2025.*
- *Quality goals and environmental goals for 2024 were completed in May 2024.*

ED Tuzla

ED Tuzla conducted a supervisory audit of the BAS EN ISO 14001 Environmental Management System in July 2024, along with a supervisory audit of the System according to ISO 9001 and a certification audit of the System according to ISO 50001, which together form the Integrated Management System - IMS.

ED Sarajevo

ED Sarajevo carried out the recertification of the Quality Management System in accordance with the ISO 9001:2015 standard and the certification of the Energy Management System (EMS) in accordance with the ISO 50001:2018 standard in June 2024. The recertification was carried out by the certification company TUV Nord, and ED Sarajevo obtained ISO 9001:2015 and ISO 50001:2018 certificates valid until 21/08/2027, with the mandatory implementation of annual supervisory audits.

10.ENVIRONMENTAL PROTECTION WITHIN THE SCOPE OF THE DEVELOPMENT OF ELECTRIC POWER FACILITIES

TPP Tuzla

Preparatory activities for the recultivation of the Divkovići and Plana combustion product landfills

In its Business Plan until 2027, TPP Tuzla planned the implementation of preparatory activities for the closure of the Plane, Divkovići I and Divkovići II process products landfills.

Following the environmental impact assessment procedure, FME&T issued the Decision on environmental permit to TPP Tuzla (Document number: UPI 05/2-23-11-235/18 SN, of 12/04/2022) for the project of closing the Plane, Divkovići I and Divkovići II process products landfills. TPP Tuzla returned this Decision to the FME&T within the legally prescribed deadline so as to obtain the legal validity clause. The validity clause was not obtained due to the administrative dispute initiated before the Cantonal Court in Sarajevo by the non-governmental organisation Aarhus Sarajevo. Consequently, the realisation of the project is at a standstill

Company TQM d.o.o. Lukavac completed the Landfill Recultivation Project and it was submitted to the Cantonal Ministry for Spatial Planning, for consideration, evaluation and adoption.

Preparatory activities for the construction of a desulphurisation plant at the Tuzla TPP

The desulphurisation of Block 6 is one of the key development projects aimed at reducing SO_2 emissions.
FME&T issued a legally binding Decision on the environmental permit (Document number: UPI 05/2-02-19-5-92/20SN of 12/05/2022) for the construction of the plant.
For the Block 6 flue gas desulphurisation project, the following Consortium was chosen as a consultant: 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.

Wastewater treatment

In 2024, TPP Tuzla continued with the implementation of the Wastewater Treatment project. Within the framework of the project, the Preliminary Design for the construction of a wastewater treatment plant at the Tuzla TPP was contracted, developed and revised.

TPP Kakanj

Construction of a joint desulphurisation plant on Blocks 6 and 7

Implementation of the joint desulphurisation plant construction project for Blocks 6 and 7 at TPP Kakanj continued in 2024.

JP EPBiH signed a contract with the Consortium of companies: Dongfang Electric International Corporation China, ITC d.o.o. Zenica, State Power Investment Group Yuanda Environmental Protection Engineering Co. Ltd. China, Saraj inženjering d.o.o. Sarajevo, Winner d.o.o. Sarajevo, Firing d.o.o. Visoko. The deadline for the implementation of the Contract is 36 months.

The project is implemented in accordance:

- *with the provisions of the Treaty Establishing the Energy Community of Southeast Europe;*
- *with the legislation in the field of environmental protection of the Federation of BiH.*

Through the implementation of the project, JP EP BiH ensures the production of electricity from its own sources for the purpose of supplying domestic customers with electricity and heat. The special importance of project implementation is also reflected in the reduction of the impact of thermoblock operation on the environment, the further improvement of cooperation with the local community and the continuation of the operation of the mines that are to supply the Kakanj Thermal Power Plant with coal until 2050.

Project of co-combustion of wood biomass with coal on thermoblocks

TE Kakanj je, u 2024. godini, realizira projekat kosagorijevanja drvene biomase sa In 2024, TPP Kakanj implemented a project of co-combustion of wood biomass with coal, in the boilers of Blocks 5, 6 and 7, in the ratio of 5% biomass and 95% coal mixture. This project was implemented based on the positive results obtained in the pilot project of co-combustion of coal with waste wood biomass, which was completed in February 2022.

Project of trial co-combustion of the alternative fuel SRF/RDF with coal at Block 7 of the Kakanj TPP

In 2024, as part of the implementation of the development project of co-combustion of alternative fuel SRF/RDF with coal at Block 7, JP EPBiH, procured 120 t of alternative fuel RDF/SRF from the company PET Servis d.o.o. Zenica. Currently, the amount of this fuel has been delivered and adequately deposited at the Hrasno coal depot in the Kakanj TPP, which is consistent with the requirements defined in the Consent to the implementation of the development project of the trial co-combustion of the alternative fuel RDF/SRF with coal in Block 7 of the Kakanj TPP.

HPP on the Neretva River

- *The reconstruction of the dilapidated faecal and storm sewers on the workshop plateau of the entrance gate and the HPP car park on the Neretva River has been completed.*
- *The construction of Gorani and Bijeli potok stations has been completed. What remains is the installation of drainage channels.*
- *Construction works on the restoration of access footpaths on the left and right banks of the Neretva have been completed.*
- *Preparation of a report for measuring drift and energy profiles in HPP plants on the Neretva River is in progress.*

ED Sarajevo

In 2024, eighteen (18) new transformer stations were built and put into operation. Thirteen (13) of these are cable-freestanding, and five (5) are pole-mounted transformer stations. All new power facilities are built with hermetically sealed oil transformers. Under each transformer in the cable transformer stations, the foundations are designed in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) in order for the technical performance to meet environmental protection standards.

On the basis of investment decisions, 3,718 new low-voltage connections, 10(20) kV medium-voltage lines with a length of 34.7 km and 0.4 (kV) low-voltage lines with a length of 91.1 km were built. Six (6) 10(20)/0.4 kV transformer stations, 7.8 km long low-voltage lines and 21,096 calculation measuring points (CMP) were reconstructed.

ED Zenica

In 2024, twenty-three (23) new transformer stations were built and put into operation. All new power facilities are built with hermetically sealed oil transformers. Under each transformer in the cable transformer stations, the foundations are solved in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) in order for the technical performance to meet environmental protection standards.

Based on the investment decisions in 2024, 2,112 low-voltage connections, medium-voltage lines 22.3 km long and low-voltage lines 135.1 km long were built.

Two (2) transformer stations 10(20)/0.4 kV, 8.6 km long medium-voltage lines, 3.7 km long low-voltage lines and 849 pieces of calculation measuring points (CMP) were reconstructed.

ED Travnik

In 2024, nine (9) new transformer stations were built and put into operation. All new power facilities are built with hermetically sealed oil transformers. Under each transformer in the cable transformer stations, the foundations are designed in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) in order for the technical performance to meet environmental protection standards.

On the basis of investment decisions, in 2024, 732 low-voltage connections, medium-voltage lines 5.3 km long and low-voltage lines 45.9 km long were built.

The total of 2,604 calculation measuring points (CMP) were reconstructed.

ED Bihać

As part of the electricity distribution activity, new power facilities were built and the existing power facilities were reconstructed.

When it comes to measures taken to protect the environment, in all activities involving investments or regular EEO maintenance, approved materials are used that are installed in accordance with the Technical Recommendations of JP Elektroprivreda BiH d.d. Sarajevo,

so that the entire environment (objects and population) is protected from our objects and facilities to the extent required by technical instructions, norms and procedures.

In 2024, there was no construction and installation of power plants and facilities for which it is necessary to obtain certain permits.

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

ED Tuzla

In 2024, seventeen (17) new transformer stations were built and put into operation. Of these, six (6) are cable-freestanding, and eleven (11) are pole-mounted transformer stations.

All new power facilities (transformer stations 10(20)/0.4 kV) built in 2024 were built with hermetically sealed oil transformers, and under each transformer in the cable transformer stations, the foundations were designed in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) so that the technical performance meets the standards from the aspect of environmental protection. During the construction of new power facilities in accordance with the technical possibilities, it is foreseen that the transformer substations of the pole-mounted design will not be located in the water protection zone.

Based on investment decisions, 3,371 new low-voltage connections, 10(20) kV medium-voltage lines 36.23 km long and 0.4 (kV) low-voltage lines 198.3 km long were built in 2024. Two (2) transformer stations were reconstructed, of which one (1) is a cable-free-standing, one (1) pole-mounted substation, medium-voltage lines with a route length of 611.0 m, low-voltage lines 450.0 m long and 1,603 units of calculation measuring points (CMP).

ED Mostar

All new power facilities (transformer stations 10(20)/0.4 kV) built in 2024 were built with hermetically sealed oil transformers, and under each transformer in cable transformer stations the foundations were designed in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) so that the technical performance meets environmental protection standards.

Care was taken to ensure that the transformer substations of the pole-mounted design are not located in the water protection zone.

ED Travnik

In 2024, nine (9) new transformer stations were built and put into operation. All new power facilities are built with hermetically sealed oil transformers. Under each transformer in the cable transformer stations, the foundations are designed in such a way as to enable the collection of the entire amount of energy transformer oil (oil sump with a volume of at least 0.6 m^3, oil-tight) in order for the technical performance to meet environmental protection standards.

On the basis of investment decisions, in 2024, 732 low-voltage connections, medium-voltage lines 5.3 km long and low-voltage lines 45.9 km long were built.

The total of 2,604 pieces of calculation measuring points (CMP) were reconstructed.

11. CAPITAL INVESTMENTS

Una Kostela HPP –continued reconstruction and expansion project

- *At the request of the FME&T, on 15/07/2024, an additional amendment to the Request for a Preliminary Environmental Impact Assessment for the Reconstruction and Expansion of the Una Kostela HPP – Annex was made*
- *A visit to the Una Kostela HPP – Annex location was paid with representatives of the FME&T*

HPP Kovanići

- *On 05/12/2024, FME&T issued a Decision on the approval of the Environmental Impact Study number: UPI 05/2-02-19-4-11/24*
- *All reasoned remarks of the interested parties and members of the expert commission were taken into account, and the Environmental Impact Study was supplemented.*
- *The FME&T expert commission gave a positive opinion on the Environmental Impact Study after the amendments were made*
- *On 07/06/2024, a public discussion was held in the process of the Environmental Impact Study evaluation*

WF Vlašić

During 2024, activities on field research and on the preparation of the Study of Critical Habitats continued, for which the European Investment Bank (EIB) approved grant in the amount of €300,000, and hired a consultant for the preparation of the Study in October 2022.

WF Bitovnja

- *For the residents and interested public of the Local Community of Bradina, that is, of the Local Community of Neretvica, public presentation of the WF Bitovnja project was held on 12/11/2024 in the premises of Primary School "Bradina" and on 29/11/2024 in the premises of Primary School "Parsovići ".*
- *On 16/12/2024, a Request for a preliminary environmental impact assessment was submitted to FME&T*

12. DRAFTING PLANNING AND STUDY DOCUMENTS

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

Development projects

- *Realisation of the project for the Danube Interreg programme - Empowerment of the stakeholders in the implementation of the Directive on the promotion of the use of energy from renewable sources in terms of energy storages and energy networks stability (ESINERGY) project*

Environmental effect: Increasing production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions.

- *Realisation of the project for HORIZON EUROPE - Supporting European R&I Through stakeholder collaboration and institutional reform (INITIATE) project*

Environmental effect: Increasing production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions.

- *Realisation of the project for the IPA ADRION Programme - Adriatic-Ionian Offshore Wind Network of Excellence (ADRIONWIND) project*

Environmental effect: Increasing production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions

- *Development project of electromobility in EPBIH - pilot projects in progress:*

Construction of the infrastructure of public AC charging stations for electric vehicles in Bosnia and Herzegovina

Installation of two ultra-fast 150 kW DC charging stations for electric vehicles at petrol station locations

Implementation of the charging station monitoring and management system (CPMS) with billing service

Environmental effect: Reduction of CO_2 and pollutant emissions due to increased use of electric vehicles compared to vehicles with internal combustion engines

- *The campaign project for measuring wind potential and solar energy potential (examination of wind potential and solar energy potential in several localities throughout BiH with the aim of determining suitable locations for the construction of production facilities on these renewable resources).*

Environmental effect: Increase in production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions

- *Development of the Bitovnja wind farm project.*

Environmental effect: Increased production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions (approx. 230,000 tons of CO_2 per year)

- *Observation of the yield of 2 x 1 ha within the framework of the implementation of the pilot project of experimental plantings of the energetic fast-growing acacia trees at the coal mine RU Kreka and the brown coal mine RMU Đurđevik, from the grant support of the EBRD.*

Environmental effect: Increasing production from renewable sources (by replacing coal with biomass from fast-growing energy plants), which leads to a reduction in CO_2 and pollutant emissions

Planning and study documentation

- *Preparation of the construction of photovoltaic power plants on the vacant areas of mines of the EPBiH Concern; PVPP Bedrok 1, PVPP Bedrok 2, PVPP Bedrok 3 and PVPP Potočari 1.*

Environmental effect: Increased production from renewable sources, which leads to a reduction in CO_2 emissions (approx. 100,000 tons of CO_2 per year) and pollutants

- *Preparation of the framework for financing the construction of 5 PVPP projects of EPBiH (approx. 180 MW) in cooperation with the EBRD.*

Environmental effect: Increase in production from renewable sources, which leads to a significant reduction in CO_2 emissions (approx. 220,000 t/y) and pollutants

- *Preparation of the framework for financing the construction of PVPP Lukavačka Rijeka 1A – 8MW, PVPP Lukavačka Rijeka 1B, PVPP Lukavačka Rijeka 2 – 24MW and PVPP Lukavačka Rijeka 2 – 24MW projects.*

Environmental effect: Increase in production from renewable sources, which leads to a significant reduction in CO_2 emissions (approx. 100,000 t/y) and pollutants

- *Completion of the implementation of the Energy management system according to ISO 50001 in the production and ED branches*

- *Creation of the Net Decarbonisation Plan of JP Elektroprivreda BiH until 2050. (under the auspices of the EBRD).*

Environmental effect: Reduction of CO_2 and pollutant emissions.

- *Participation in the implementation of the WB Project "Platform for the just transition of coal regions in Bosnia and Herzegovina"; monitoring of the realisation of the Road Map of the just transition of coal regions in BiH + preparation of the Project note of the just transition of RMU Zenica*

Environmental effect: Reduction of CO_2 and pollutant emissions.

- *Preparation of Project Study Conversion of Block 3 of TPP Tuzla to Biofuels, Chapter Logistics Study of Biomass and Technology Study.*

Environmental effect: Reduction of CO_2 emissions (approx. 100,000 t/y) and pollutants.

- *Preparation of the Study "Models of construction of roof PVPP with potential active customers with the support of JP EPBIH".*

Environmental effect: Increase in production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions

- *Preparation of the Study "Project of the system for monitoring the quality of electricity in JP Elektroprivreda BiH d.d. - Sarajevo", Preparation of the Study in progress*

Environmental effect: Increase in energy efficiency in the distribution industry, which leads to a reduction in CO_2 and pollutant emissions

- *Preparation of the Study "Automation of MV distribution networks at the level of JP EP BiH" – completed Study, review of the Study in progress*

Environmental effect: Increase in energy efficiency in the distribution industry, which leads to a reduction in CO_2 and pollutant emissions

- *Participation in the creation of the Indicative Production Development Plan 2025-2034. (coordination with NOS BIH). Preparation of the basis for the Indicative Production Development Plan 2026-2035.*

Environmental effect: Increase in production from renewable sources, which leads to a reduction in CO_2 and pollutant emissions

13. ENVIRONMENTAL PROTECTION COSTS

For the time being, JP EPBiH does not keep special records of investments and costs for the implementation of plans and programmes in the field of environmental protection and natural resources. Funds are planned and realised within the framework of investments and regular maintenance of plants and equipment. There is no harmonised procedure for presenting objective indicators of total costs in implemented activities, which also includes fees for the use of natural resources. For this reason, it is difficult to provide reliable and complete data on the total spent funds of JP EPBiH, in this context.
According to the data available for the preparation of this document, the total amount is ***KM 43,520,701.62****. This indicator is a confirmation that environmental protection is also a significant segment of our company's overall business from a financial point of view.*

Table 4 shows, according to the available data, environmental protection costs by Branches, at the level of the Company's Directorate and total costs for JP EPBiH.

Table 4. Environmental protection costs

JP EPBiH	***u KM***
Implemented activities	
TPP Tuzla	*596.579,78*
TPP Kakanj	*1.507.468,46*
HPP on the Neretva River	*115.946,66*
ED Sarajevo	*548.382,82*
ED Tuzla	*397.488,88*
ED Zenica	*190.207,73*
ED Travnik	*146.011,48*
ED Bihać	*493.110,00*
ED Mostar	*123.697,10*
Total 1	***4.118.892,91***
Environmental protection fees	
TPP Tuzla	
Air pollution fee	*1.689.509,12*
Compensation according to the Law on the allocation of part of the income generated by the operation of TPP	*3.802.312,57*
Water protection fee (EBS)	*358.663,62*
General water management fee	*78.922,32*
Fee for the use of multipurpose forest functions	*0,00*
Garbage collection fee	*73.215,00*
	6.002.622,63
TPP Kakanj	
Air pollution fee	*2.242.918,03*
Compensation according to the Law on the allocation of part of the income generated by the operation of TPP	*2.473.382,95*
Water protection fee (EBS)	*58.408,37*
Water contribution for used water	*248.355,72*
Utility fees and concessions	*1.219.808,52*
	6.242.873,59

HPP on the Neretva River	
Special water fees for water use	*1.198.113,56*
Contributions for hydro-accumulation	*13.197.315,44*
Contributions for hydro-accumulation (cantonal level)	*5.994.171.,54*
Water protection fee of HPP on Neretva	*4.551,44*
Utility fees and concessions	*247.333,92*
	20.641.485,90
Elektrodistribucija Sarajevo	
General water fee	*54.318,27*
Fee for the use of general forest functions	*1.460,20*
Compensation from the income generated by the use of the hydro-accumulation facility for hydro-accumulation for mHPP Bogatići	*69.219,27*
Special water fee for Bogatići hydro-accumulation	*6.481,18*
Special water fee for mHPP Osanica 1	*1.487,38*
Concession agreement for mHPP Osanica 1	*16.073,07*
	149.039,37
Elektrodistribucija Tuzla	
General water fee	*56.880,18*
Fee for the use of general forest functions	*0,00*
Tax for protection in the event of natural and other disasters	*56.880,18*
Utility fees and concessions	*6.152,79*
Water contribution for the use of hydro-accumulation	*231.456,83*
Water contribution for used water	*156.603,12*
Municipal waste removal fee	*52.334,42*
	560.307,52
Elektrodistribucija Zenica	
General water management fee	*46.231,18*
Special tax for protection in the event of natural and other disasters	*46.231,18*
Fee for the use of general forest functions	*0,00*
Fee for the use of the road strip	*17.861,72*
Utility fees and concessions	*76.645,75*
Garbage collection fee	*28.197,67*
Other utility services and fees	*1.577,25*
	215.744,75

Elektrodistribucija Travnik	
General water management fee	*23.431,96*
Special tax for protection in the event of natural and other disasters	*23.431,96*
Fee for the use of general forest functions	*8.466,65*
Fee for the use of the road strip	*3.247,51*
Utility fees and concessions	*744.205,16*
Garbage collection fee	*16.321,21*
Other utility services and fees	*68,21*
	819.172,66
Elektrodistribucija Bihać	
General water management fee	*39.230,00*
Water protection fee	*17.000,00*
Water contribution for used water	*50.040,00*
Tax for protection in the event of natural disasters	*39.230,00*
Utility fees and concessions	*320.000,00*
Fee for the use of the road strip	*35.420,00*
Fee for the use of general forest functions	*29.550,00*
	530.470,00
Elektrodistribucija Mostar	
General water management fee	*22.510,05*
Utility fee	*1.562,76*
Tax for protection in the event of natural disasters	*22.510,05*
Fee for the use of the road strip	*9.120,29*
Fire insurance fee	*0,00*
Fee for removal of municipal waste	*17.547,27*
Other utility fees	*1.750,34*
	75.000,76
Total 2	***35.236.717,18***
Company Directorate	
Strategic Development Sector	
Development projects	*826.380,00*
Planning and study documentation	*660.000,00*
	1.486.380,00
Capital investments	*18.289,57*
Water fees and utility services	*1.174.041,96*
TOTAL JP EPBiH	***43.520.701,62***

Report on Environmental Protection for the Year 2024
Vilsonovo šetalište 15, 71000 Sarajevo, BiH
BiH PUBLISHER - JP Elektroprivreda BiH d.d.-Sarajevo
DESIGN – Minja Mirković-Husić