

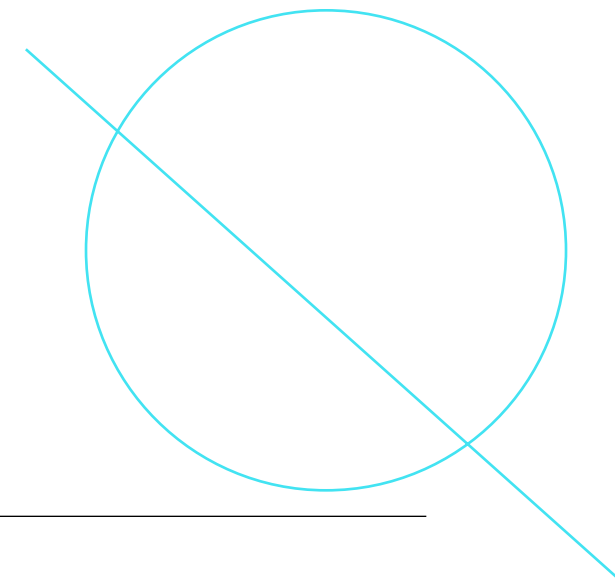


AREP

Annual Report on Environmental Protection for 2017

Public Enterprise Elektroprivreda
Bosnia and Herzegovina d.d. - Sarajevo

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1 Power and Thermal Energy Generation

In 2017, JP Elektroprivreda BiH in its production facilities has achieved the total electricity generation in the amount of 7,020 GWh, of which thermal power plants produced 6,018 GWh (TPP Tuzla 3,472 GWh and TPP Kakanj 2,546 GWh), and hydro power plants 1,002 GWh (HPP on Neretva 942 GWh and SHPPs 60 GWh) (**Diagram 1**).

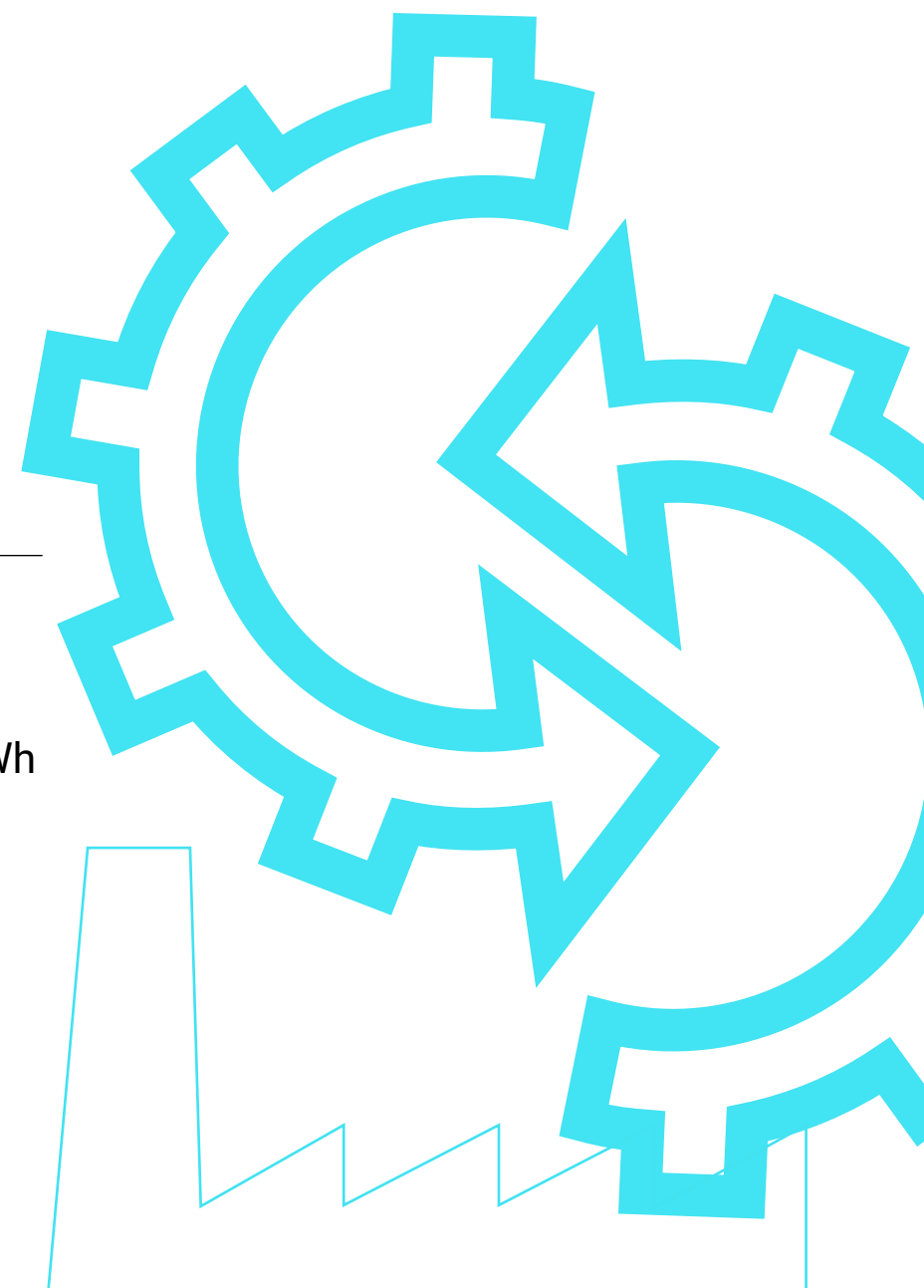


Diagram 1. Production of electricity in 2017

(GWh)

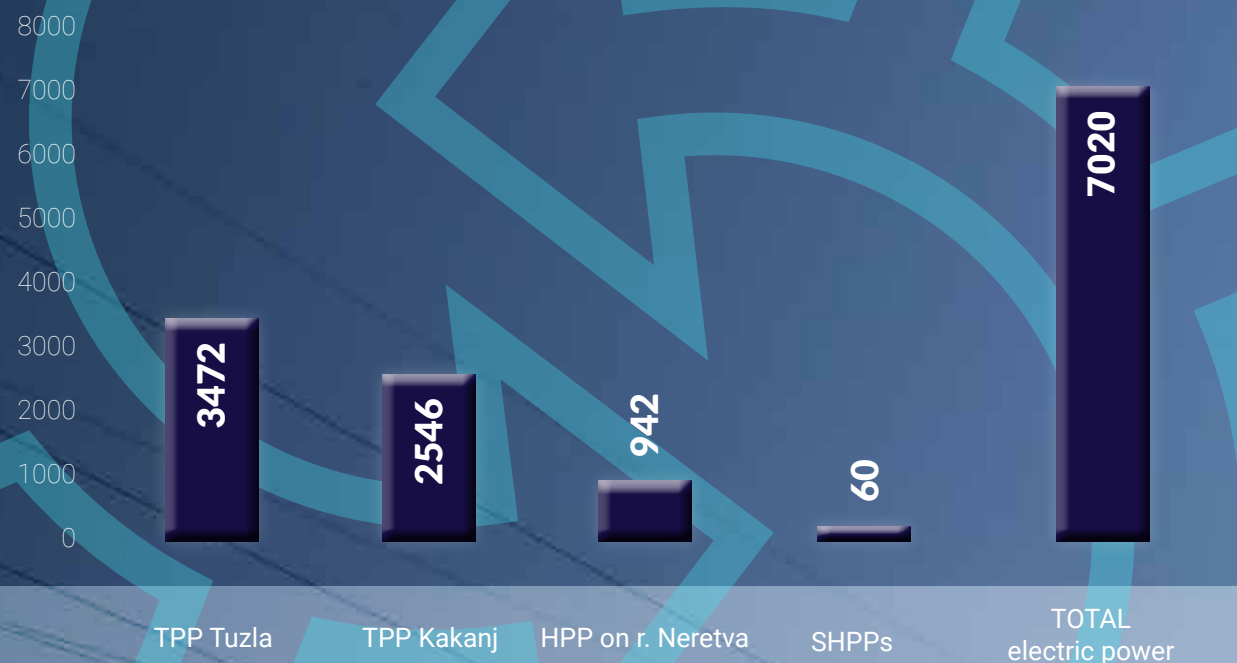


Diagram 2. Balance of the production of electricity and heat in TPP Tuzla and TPP Kakanj

(GWh)

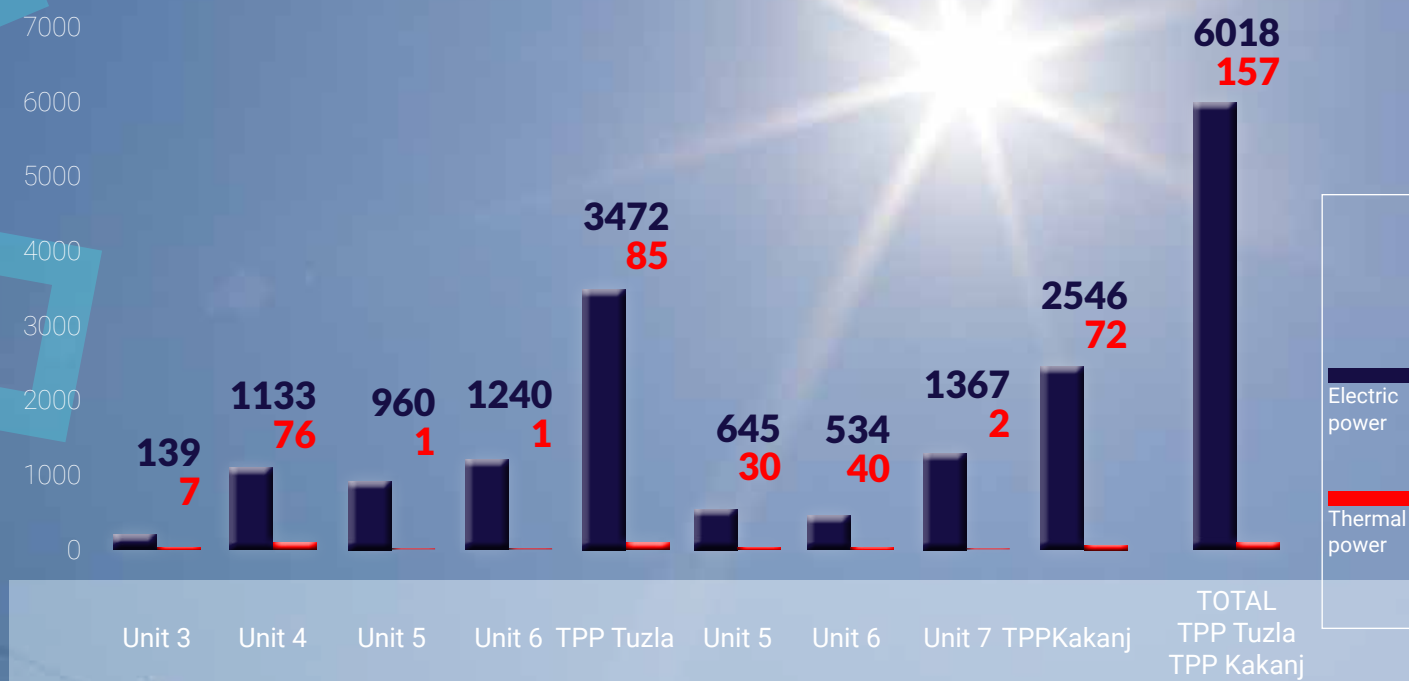


Diagram 3. Balance of the production of electricity in HPPs on river Neretva (GWh)

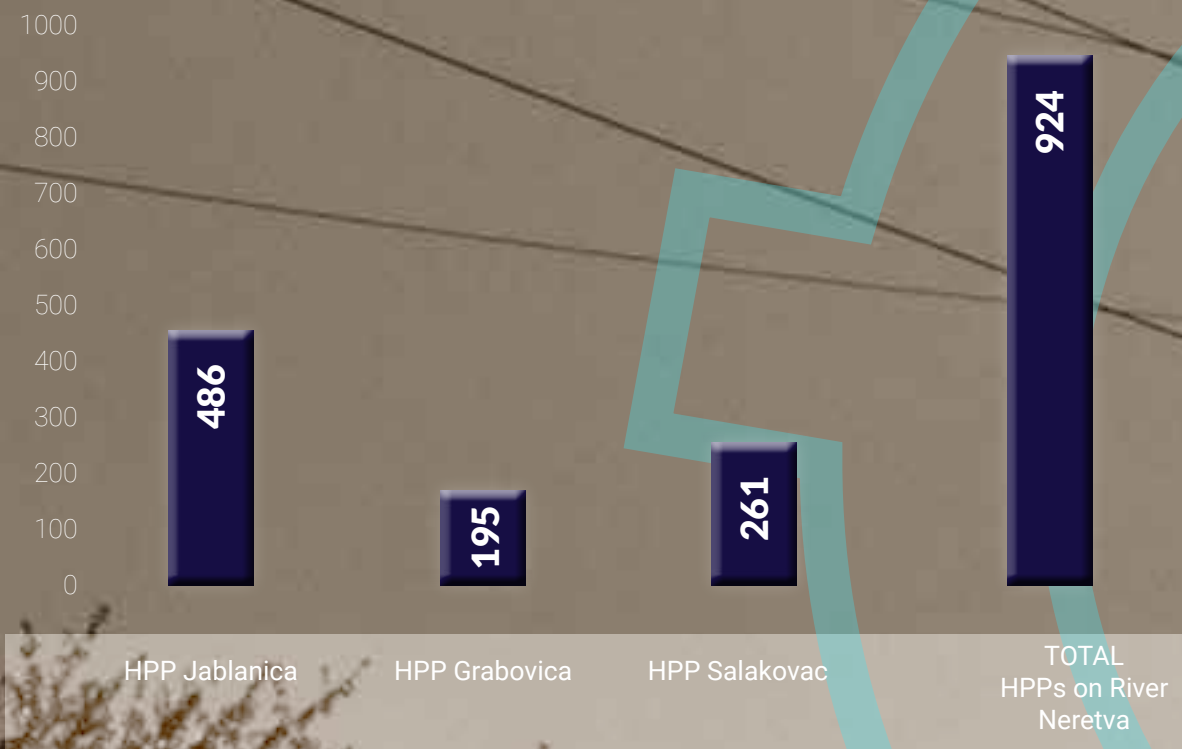
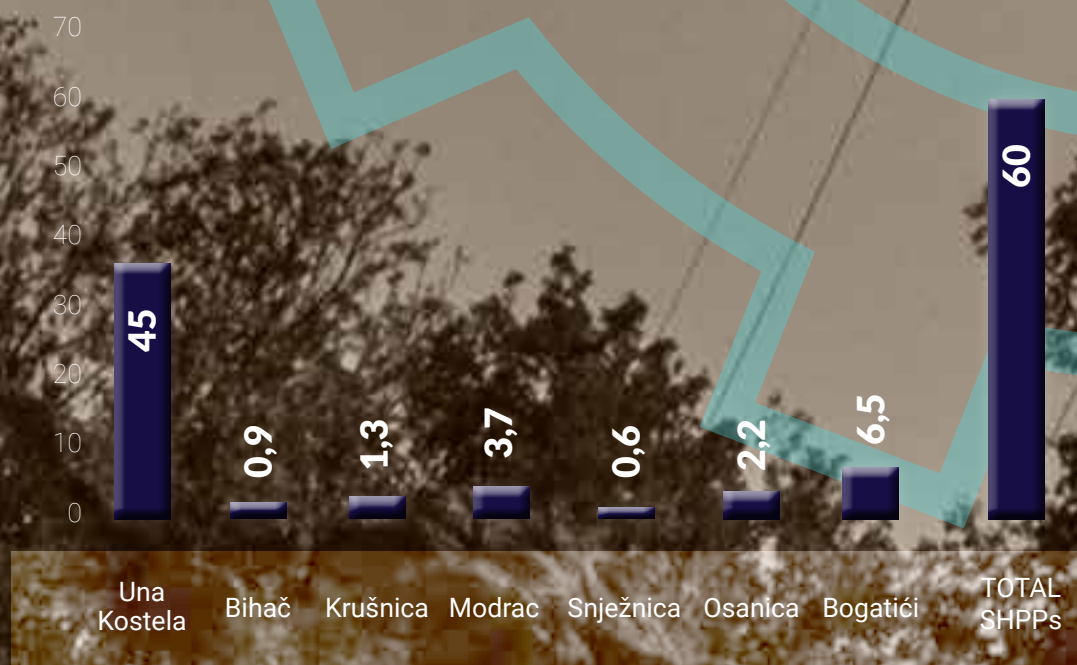


Diagram 4. Balance of the production of electricity in SHPPs (GWh)



Operation of the electric power system of JP Elektroprivreda BiH in 2016 was characterized by:

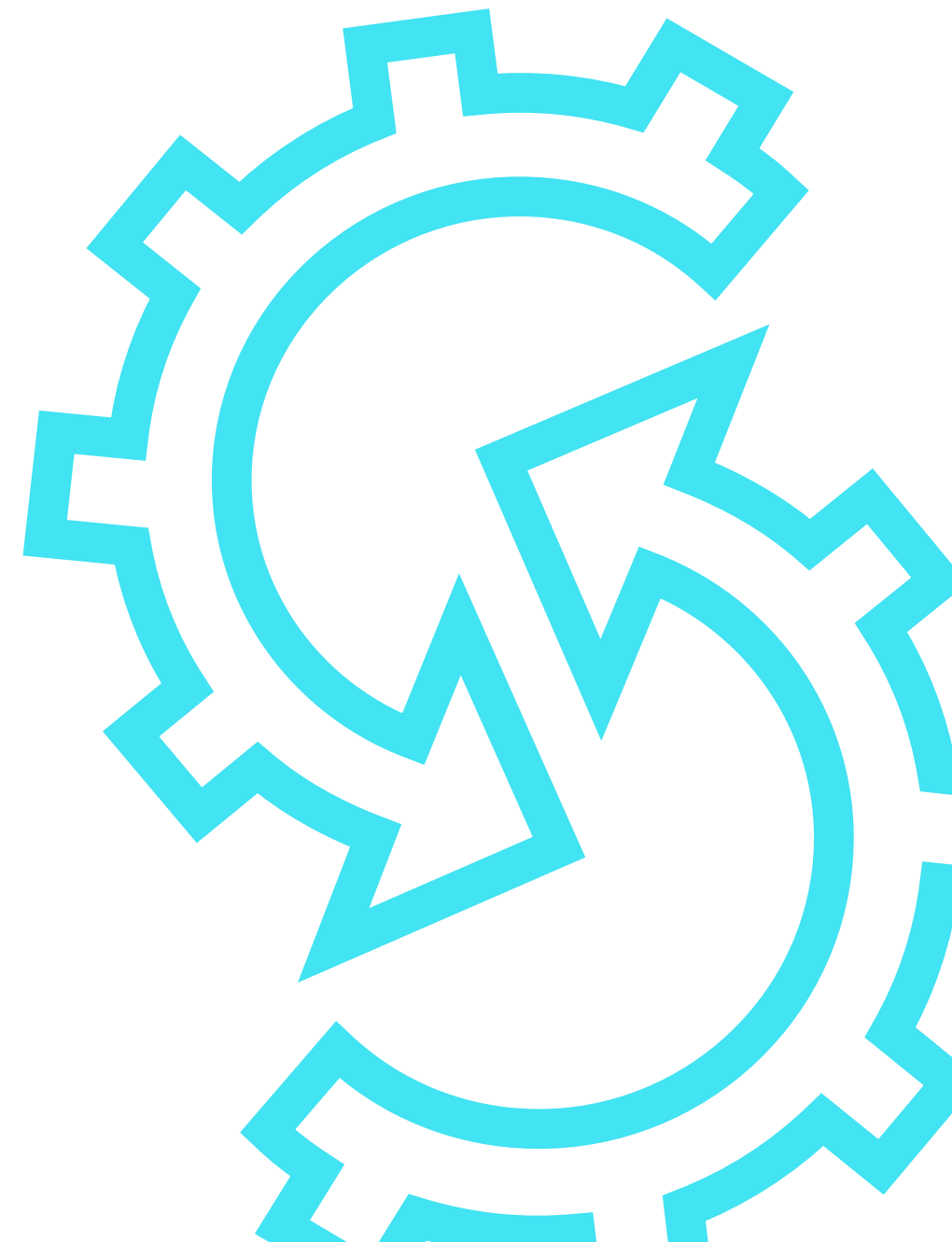
- extremely unfavourable hydrological conditions; total realized natural water inflows were 472 GWh or 23.0% lower than the inflows in the hydrologically more favourable 2016;
- total consumption of coal 433,739 t or 7.9% higher than the purchase in 2016;
- total electricity production lower by 224 GWh or 3% than the production realized in 2016;

Table 1. Total annual coal consumption in 2017

Power plant	Coal consumption (t)
TPP Tuzla	3.792.711
TPP Kakanj	2.369.512
Total	6.162.223

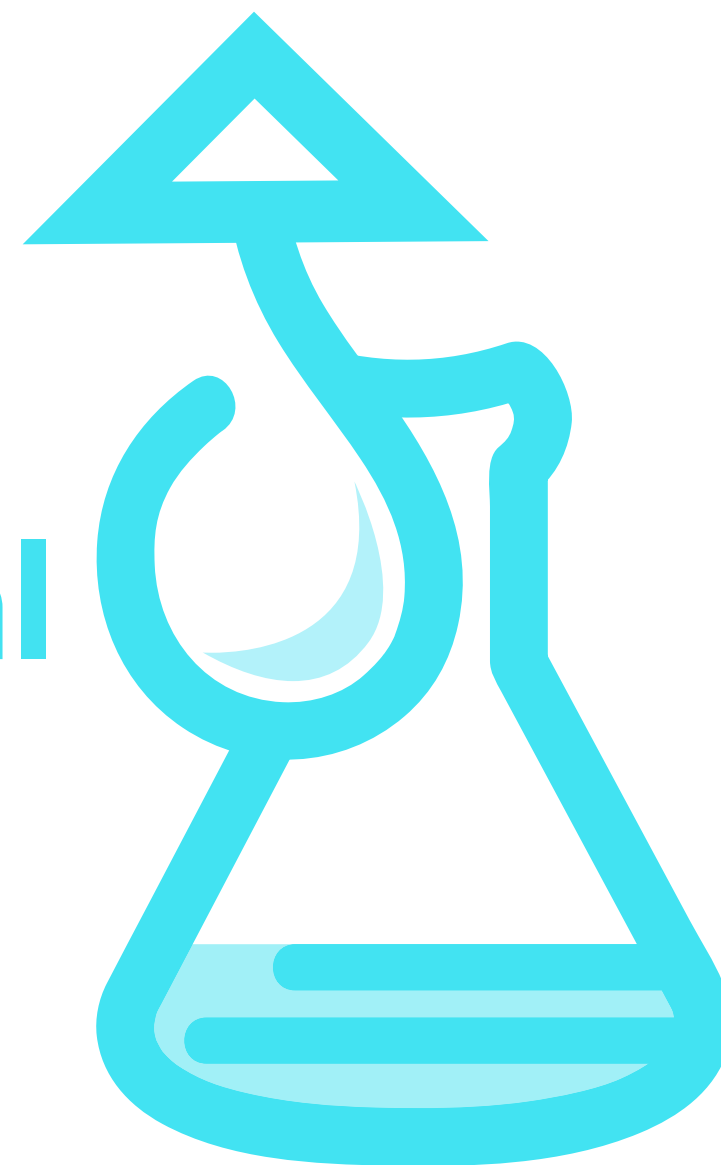
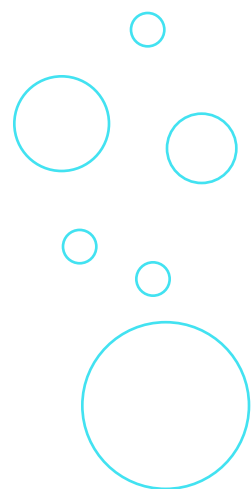
Table 2. Water used in Hydro Power Plants on river Neretva in 2017

Hydro power plant	Used water m³
HPP Jablanica	2.160.720.000
HPP Grabovica	2.448.320.000
HPP Salakovac	2.663.190.000
Total	7.272.230.000



2

Basic indicators of environmental impact and environmental protection measures



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

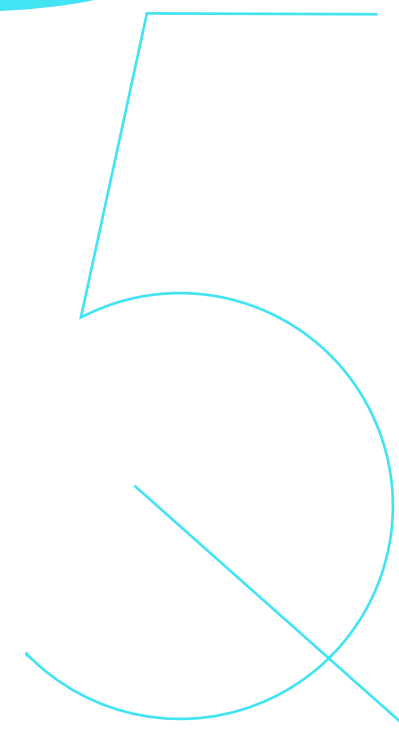


Table 3. Emissions of pollutants into air and CO₂ emissions from TPP Tuzla and TPP Kakanj

Power plant	NO _x t/yr	SO ₂ t/yr	solid particles t/yr	CO ₂ t/yr
TPP Tuzla	5.222	57.692	959	3.564.130
TPP Kakanj	9.852	93.825	52	2.905.054
Total	15.074	151.517	1.110	6.469.184

Air pollutants emissions from TPPs

In accordance with the legislation in the field of air protection, JP Elektroprivreda BiH, during 2017, continued monitoring the air pollutant emissions from thermal power facilities – sulphur dioxide (SO₂), nitrogen oxides (NO_x), solid particles, and carbon dioxide (CO₂) emissions. Total annual emissions of pollutants into air and CO₂ emissions from thermal power plants are given in Table 3.

Water use and emissions into water in TPPs

Data on the amount of water consumed for generation of electricity, thermal power and process steam in thermal power facilities, as well as data on the total load of pollution of wastewater expressed in population equivalent (EBS), are given in Table 4.

Table 4. Balance of water used and discharged for generation of electricity, thermal power and process steam in TPP Tuzla and TPP Kakanj and EBS

Power plant	Used water m ³	Discharged water m ³	Population equivalent (EBS)
TPP Tuzla	10.616.048	936.288	319.273
TPP Kakanj	12.657.984	6.291.040	23.333



Waste management

During 2017, all laws and bylaws on waste management were applied to the existing waste management system in JP Elektroprivreda BiH. In 2017, our company continued the trend of improving waste management systems, by investment in the existing temporary waste storages at production subsidiaries, as well as by continuation of the Project for construction of temporary waste storages in all power distribution subsidiaries, until its final disposal.

In a total of 4,184 tons of non-hazardous waste was generated in JP Elektroprivreda BiH, of which 1,938 tons in TPP Kakanj, 1,967 tons in TPP Tuzla, and a total of 279 tons of non-hazardous waste in power distribution subsidiaries (power distribution subsidiaries: Sarajevo, Tuzla, Zenica, Bihać and Mostar).

The total amount of hazardous waste in 2017, produced in JP Elektroprivreda BiH, is 62.1 tons, of which 14.9 tons in TPP Kakanj, 4.3 tons in TPP Tuzla, 31.3 tons in HPPs on river Neretva, and a total of 11.6 tons of hazardous waste in power distribution subsidiaries (power distribution subsidiaries: Sarajevo, Tuzla, Zenica, Bihać and Mostar).

The total amount of slag and ash in TPP Tuzla and TPP Kakanj is 1,768 tons.

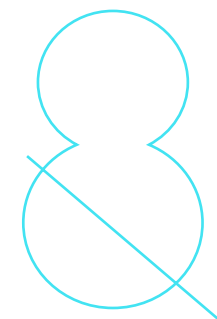
Complete waste collected from JP Elektroprivreda BiH was handed over to authorized companies for the collection, transportation, treatment and export of the same, until its final disposal.

Waste Management in ED Sarajevo

In the Subsidiary „Elektrodistribucija“ Sarajevo, a temporary waste storage has been constructed in the location Azići. On SHPP „Osanica 1“, regular cleaning of the Osanica river bed and water catchment maintenance were carried out and about 46 kg of floating waste was collected and disposed in an adequate manner.

Also, 700 m³ of the alluvial deposit was collected and disposed of.

In December 2017, the procedure was launched for the procurement of Service of Development of the Main Design for Reconstruction of the Temporary Waste Storage in the location TS Azot 1 Vitkovići, Municipality of Goražde.



Waste Management in ED Tuzla

- Obtained Urbanism Approval for the Construction of the Central Warehouse for Hazardous and Non-Hazardous Waste;
- The Filter for mineral oil purification in the transformer overhaul process was regularly maintained, and usable oil cleansed and returned to the process, unusable oil is handed over to waste operators. In this way the volume of hazardous waste is significantly reduced;
- A contract was concluded with the waste operator for intervention in emergency situations of uncontrolled environmental pollution by mineral oil.

Waste Management in ED Bihać

In 2017, “Elektrodistribucija” Bihać implemented the process of selling secondary raw materials and waste materials.

Concrete surfaces on the Water Chamber of HPP “Una” Kostela have been recovered. In accordance with the initiated investment, works on the construction of the supporting wall and the installation of the industrial fencing have been completed. Also, the bins and containers for secondary raw materials and hazardous waste have been purchased.

Waste Management in ED Mostar

In 2017, a Contract was signed with an authorized company for final disposal of collected types of non-hazardous waste.

Fish stocking

HPPs on river Neretva, Jablanica

According to the current “Fishing grounds” and submitted Annual restocking programs of fishing associations that have the fishing right on the Neretva river basin: U/OSR „Neretva 1933” Mostar, OSR „Glavatica” Jablanica, UG „OSR Konjic” Konjic, we made a regular annual restocking of water in the catchment of the river Neretva, ollows:

- **UG „OSR KONJIC” Konjic**

Supply of fingerlings/fish for restocking of fishing zone Konjic:

- Soft-mouth trout (3-5 cm)
- Soft-mouth trout (10-15 cm)
- Carp (250-500 g).

- **OSR „Glavatica” Jablanica**

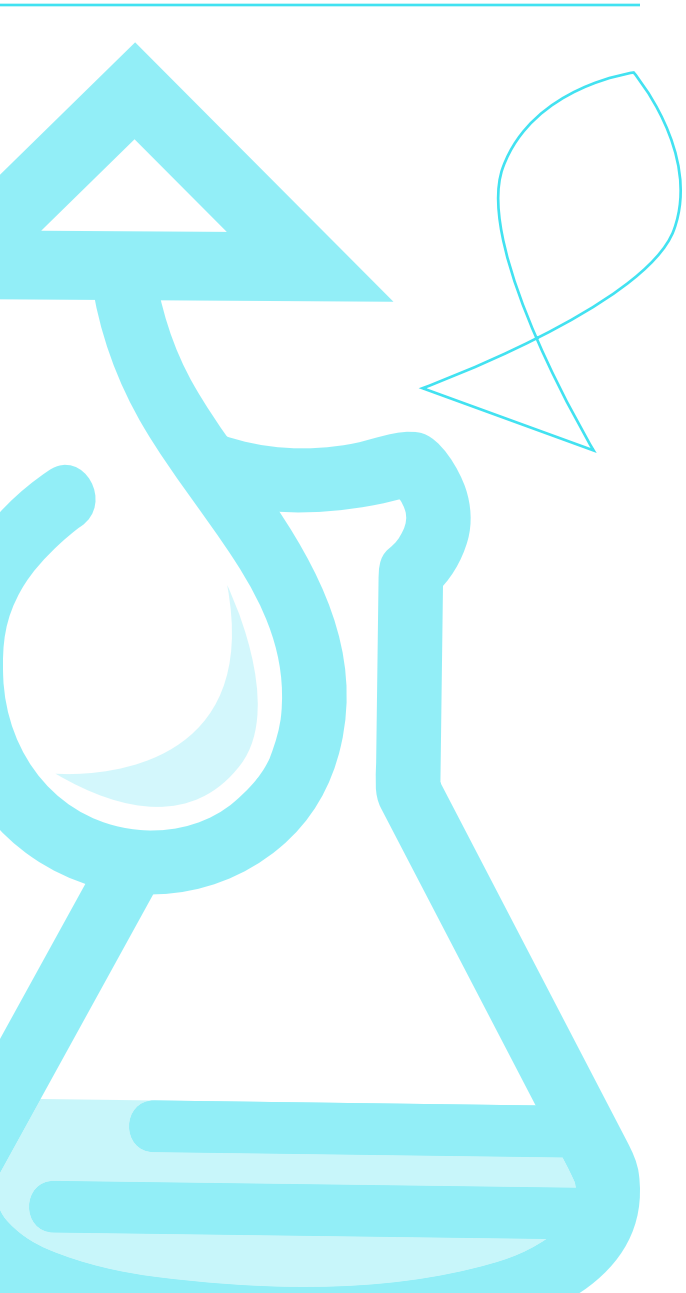
Supply of fingerlings/fish for restocking of fishing zone Jablanica:

- Carp (250 g),
- Carp (500 g),
- Carp (1000 g).

- **U/OSR “NERETVA 1933” Mostar**

Supply of fingerlings/fish for restocking of fishing zone Mostar:

- Rainbow trout (15–20 cm)
- Brook char (15–20 cm),
- Lake trout (15-20 cm),
- Soft-mouth trout (5–10 cm)
- Carp (500-1000 g).



- **Restocking of SRTD „Ramske vode“ Prozor-Rama**

Supply of fingerlings/fish for restocking of fishing zone Prozor-Rama was not made because SRTD „Ramske vode“ Prozor-Rama did not deliver the required documents (Annual restocking program for 2017 and an approval of the same, from the competent ministry).

Restocking in Power Distribution Subsidiaries (EDs)

In ED Tuzla, the “Sniježnica” hydro reservoir was restocked with the required number of fingerlings;

In Ed Bihać, restocking was made as follows:

Una river basin

Supply of fingerlings/fish for restocking of fishing zone of Una river basin, the territory of the City of Bihać - Brown trout (10-15 cm)

Krušnica river basin

Supply of fingerlings/fish for restocking of fishing zone of Krušnica river basin, the Municipality of Bosanska Krupa - Brown trout (10-15 cm) - 38,783 pieces.

Use of transformer oil in Power Distribution Subsidiaries (EDs)

ED Sarajevo

In the normal course of the process of repair and maintenance of substations and transformers, in the Canton of Sarajevo and Bosnia-Podrinje Canton Goražde, in 2017, 5,268 kg of non-chlorated insulating oil and heat transfer oil based on mineral oil was spent (17.75% more oil in 2017 compared to 2016).

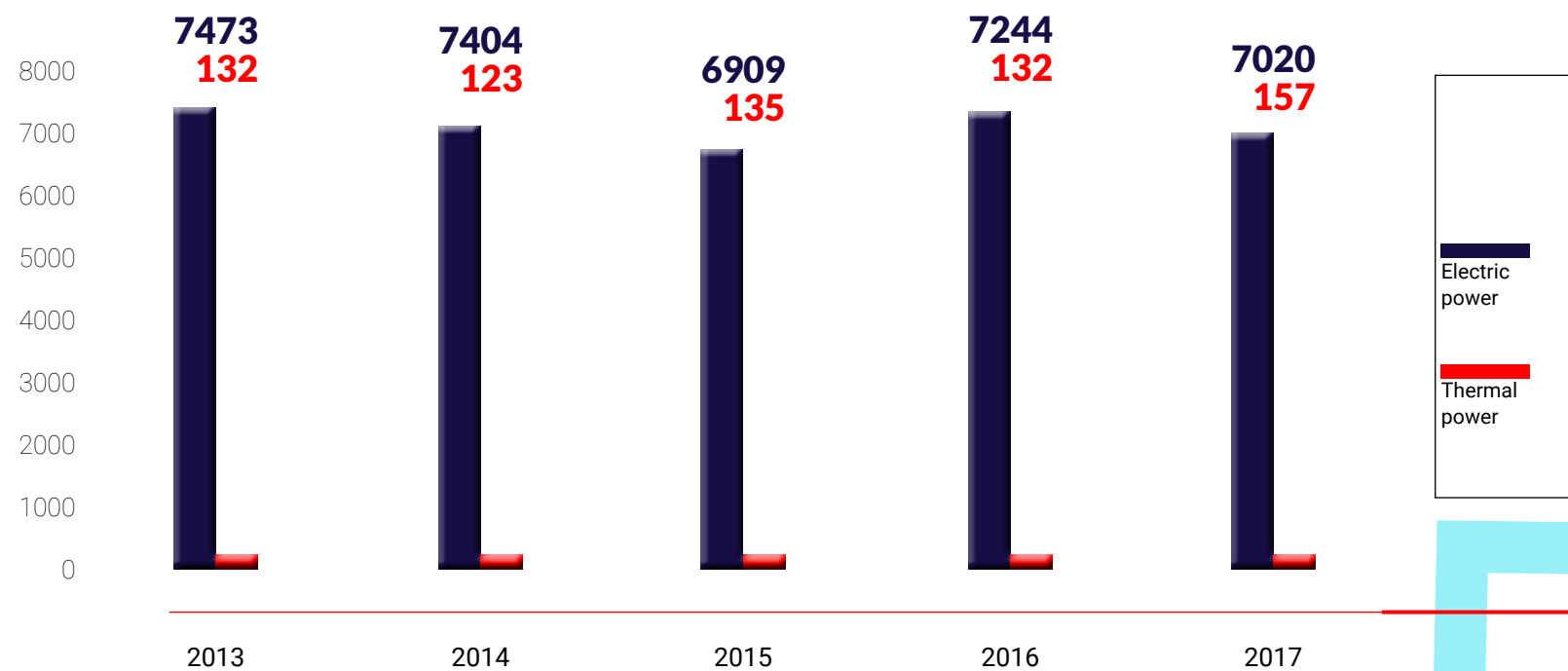
ED Bihać

Within the process of production and maintenance of power facilities in hydro power plants, biodegradable hydraulic oils and grease were used. Used oil is temporarily deposited and prepared for final disposal by authorized companies. No cases of uncontrolled oil spillage have been recorded.

3 Trend of indicators of environmental impact 2013-2017



Diagram 5. Total electric and thermal power generation in JP Elektroprivreda BiH d.d. for the period 2013 – 2017



Thermal power plants

Diagram 6. Electric power generation in thermal power plants for the period 2013 – 2017

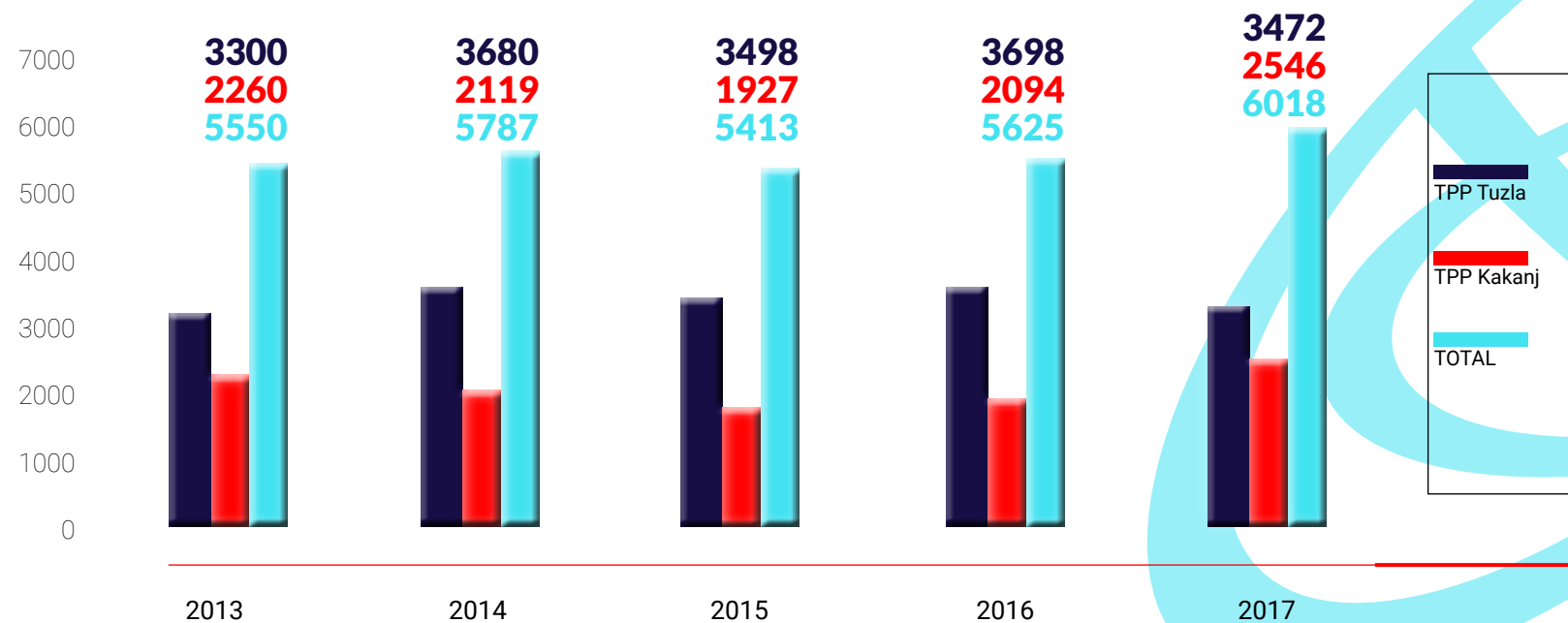


Diagram 7. Coal consumption in TPPs for the period 2013 – 2017 (t)

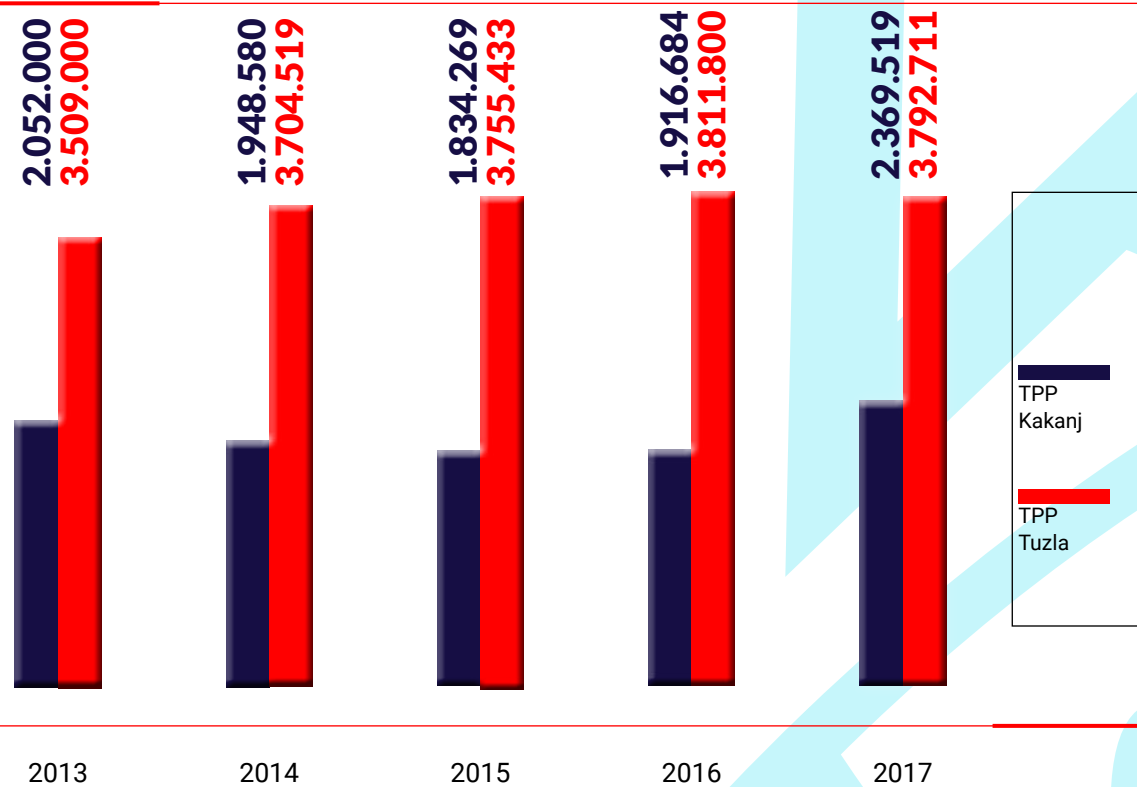


Diagram 8. Emission of SO₂ from TPPs Kakanj and Tuzla for the period 2013-2017 (t)

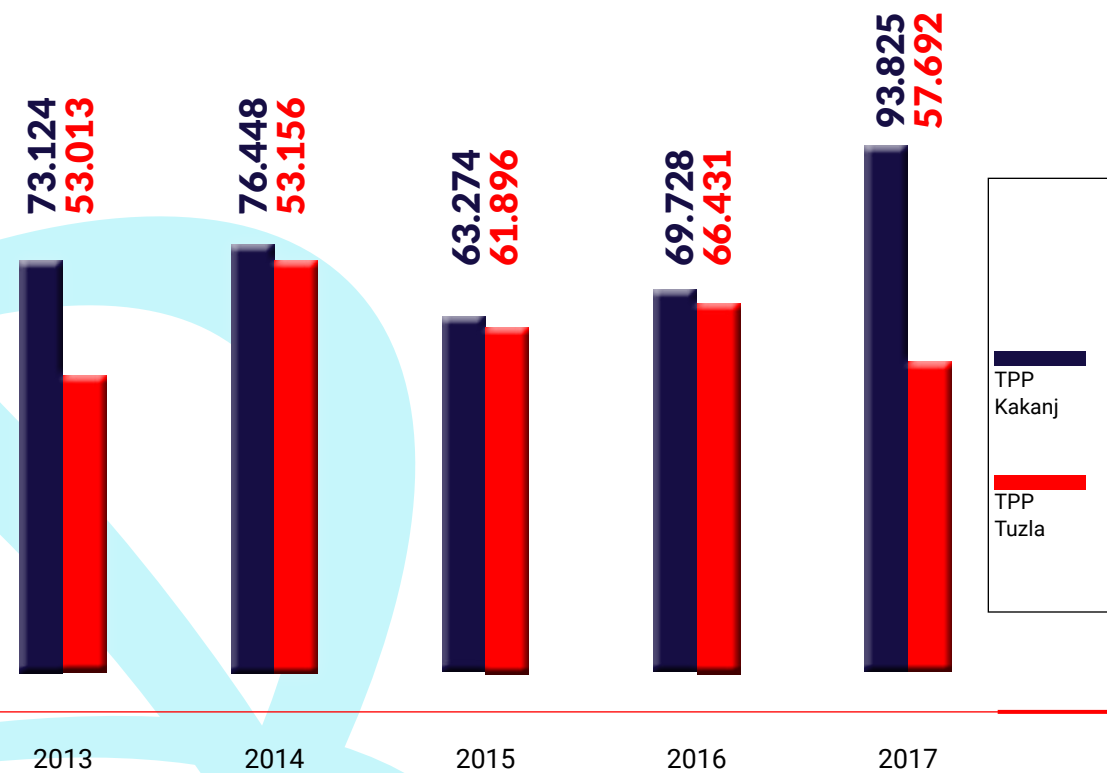


Diagram 9. Emission of NO_x from TPPs Kakanj and Tuzla for the period 2013-2017 (t)

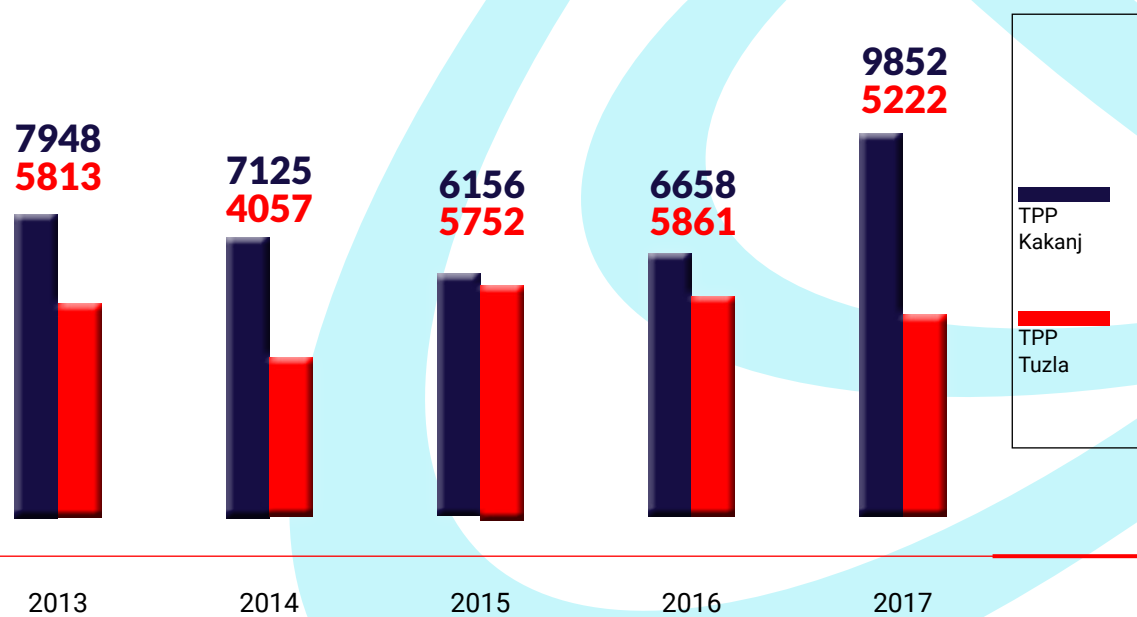


Diagram 10. Emissions of solid particles from TPPs Kakanj and Tuzla for the period 2013-2017 (t)

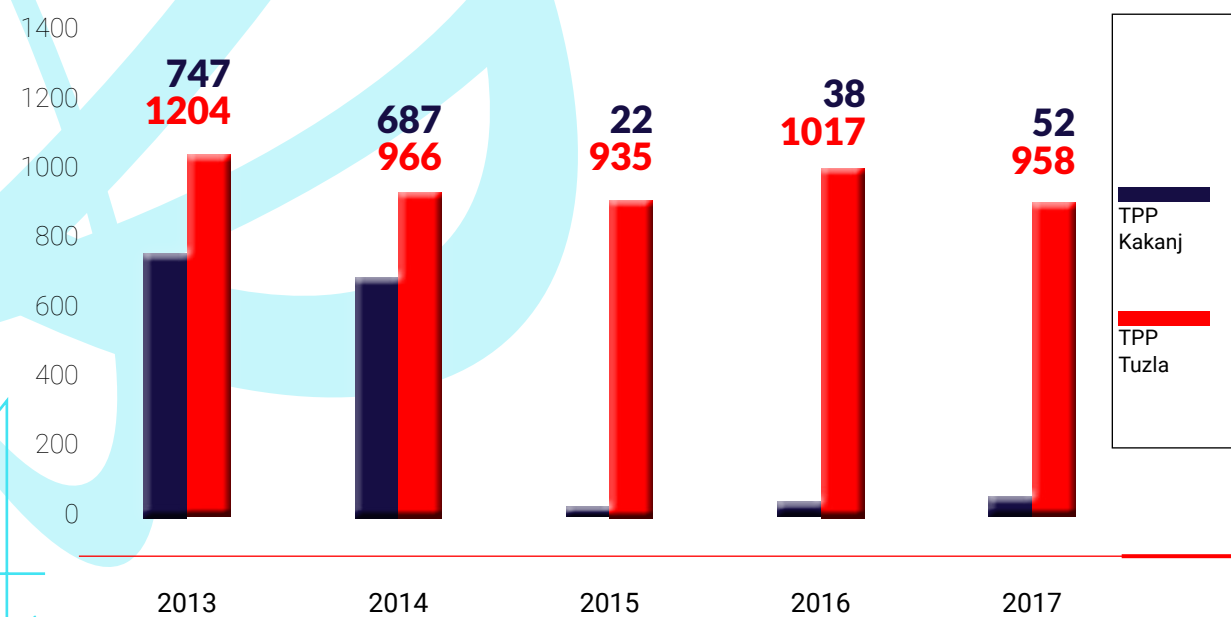


Diagram 11. Emission of CO₂ from thermal power plants Kakanj and Tuzla for the period 2013-2017 (t)

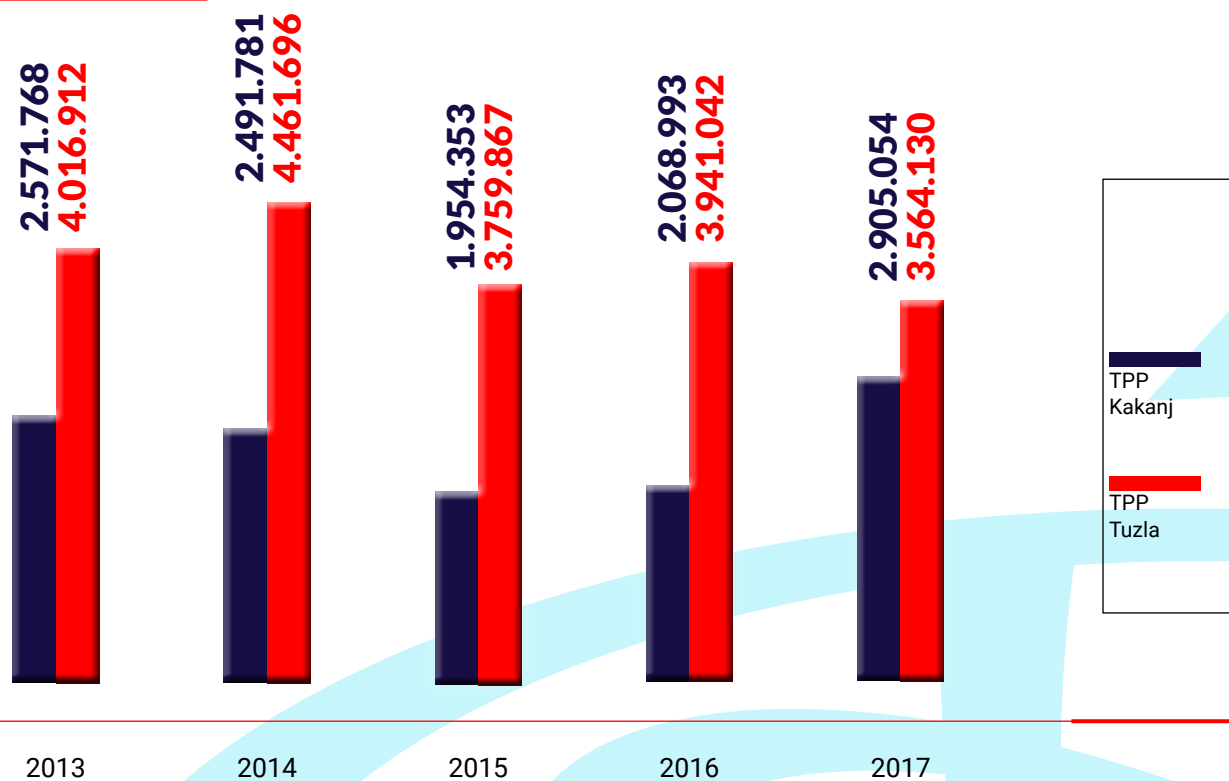


Diagram 12. Total quantity of non-hazardous waste and hazardous waste* in thermal power plants Tuzla and Kakanj for the period 2013-2017 (t)

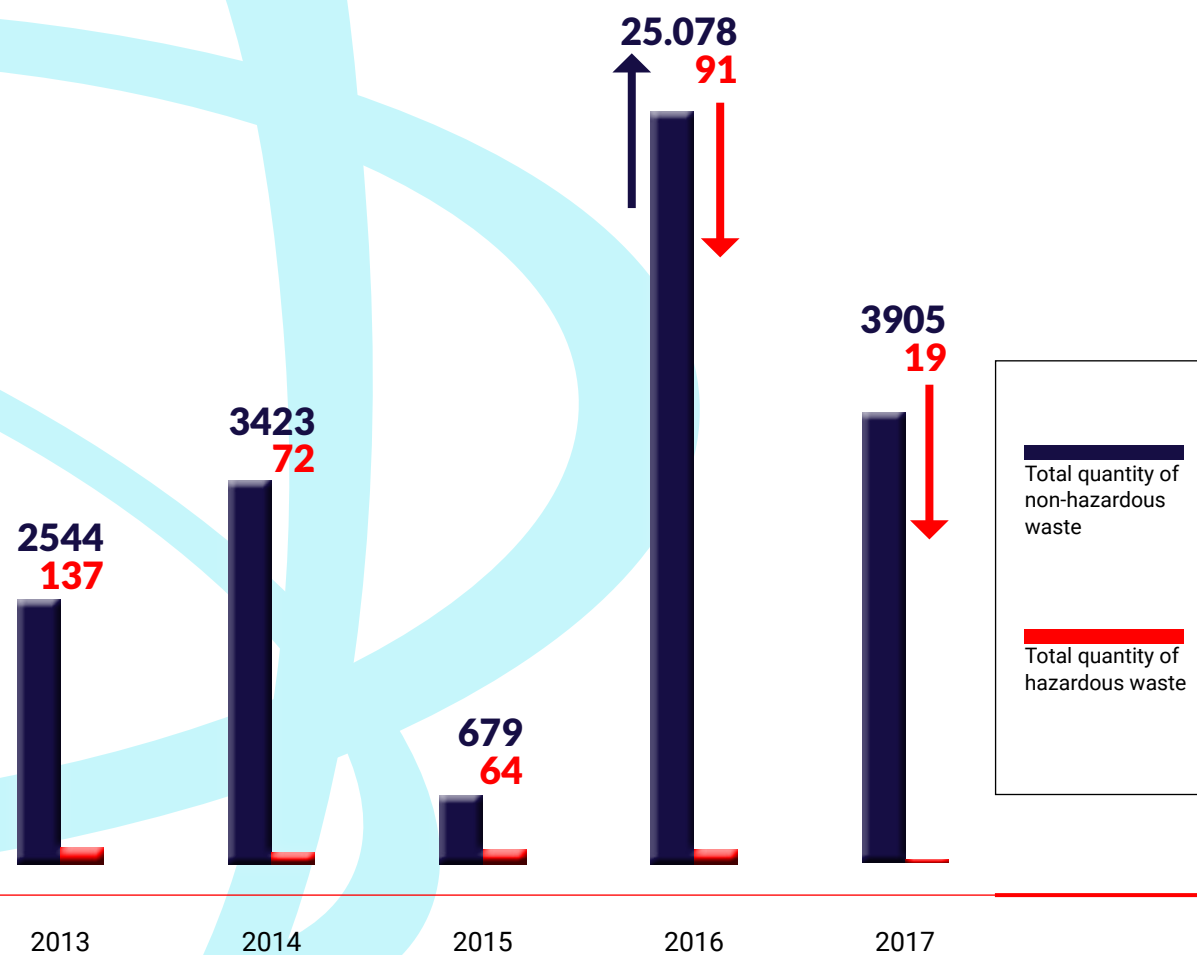
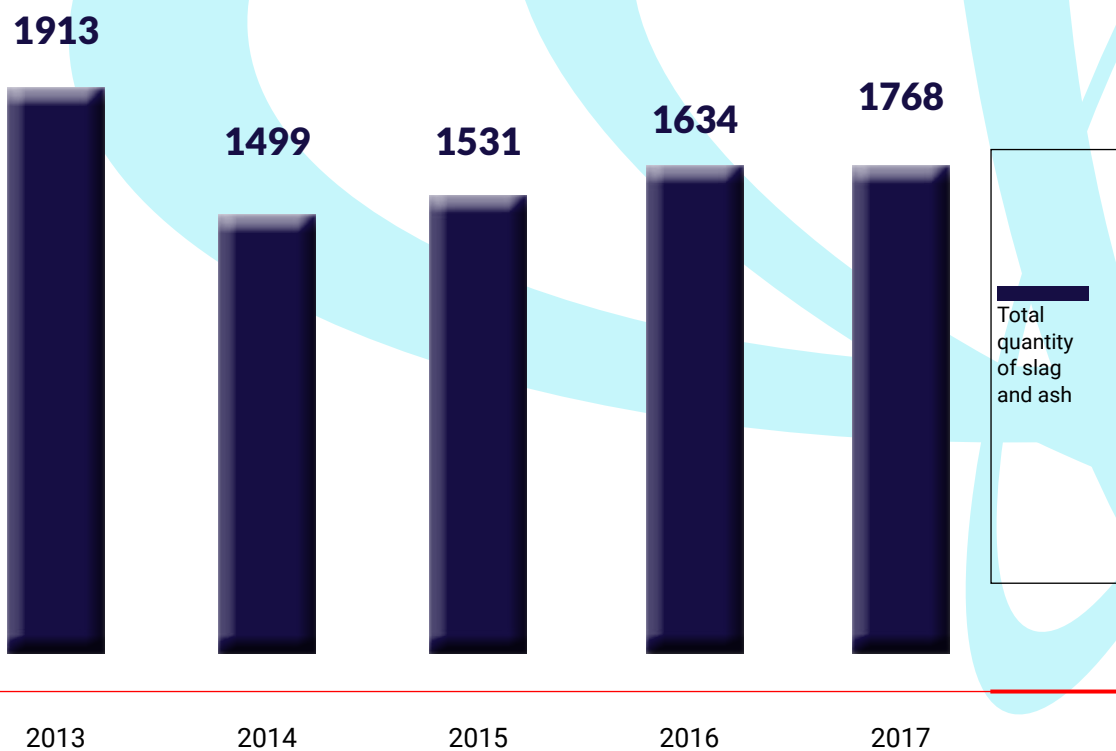


Diagram 13. Total quantity of slag and ash in thermal power plants Tuzla and Kakanj for the period 2013-2017 (t)



HPPs on River Neretva

Diagram 14. Electric power generation in HPPs on river Neretva for the period 2013-2017 (t)

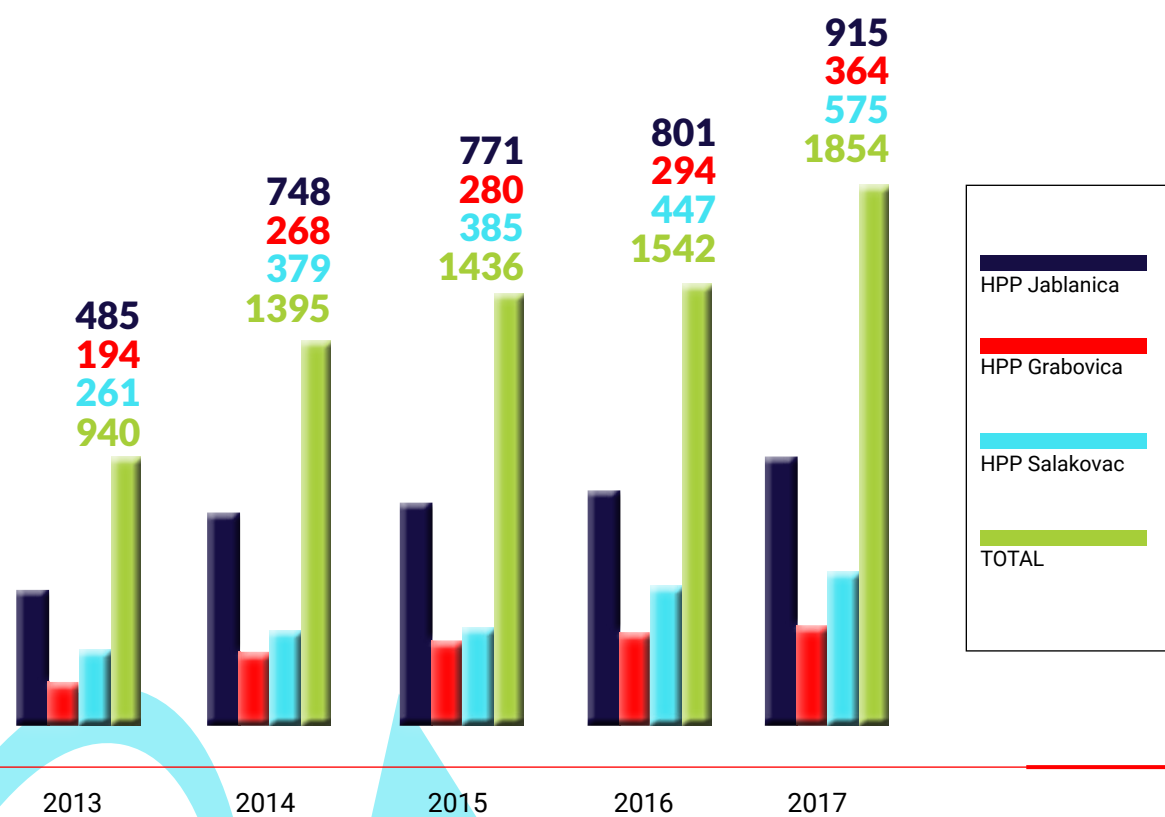


Diagram 15. Quantity of water used for electric power generation in HPPs on river Neretva for the period 2013-2017 (miliona m³)

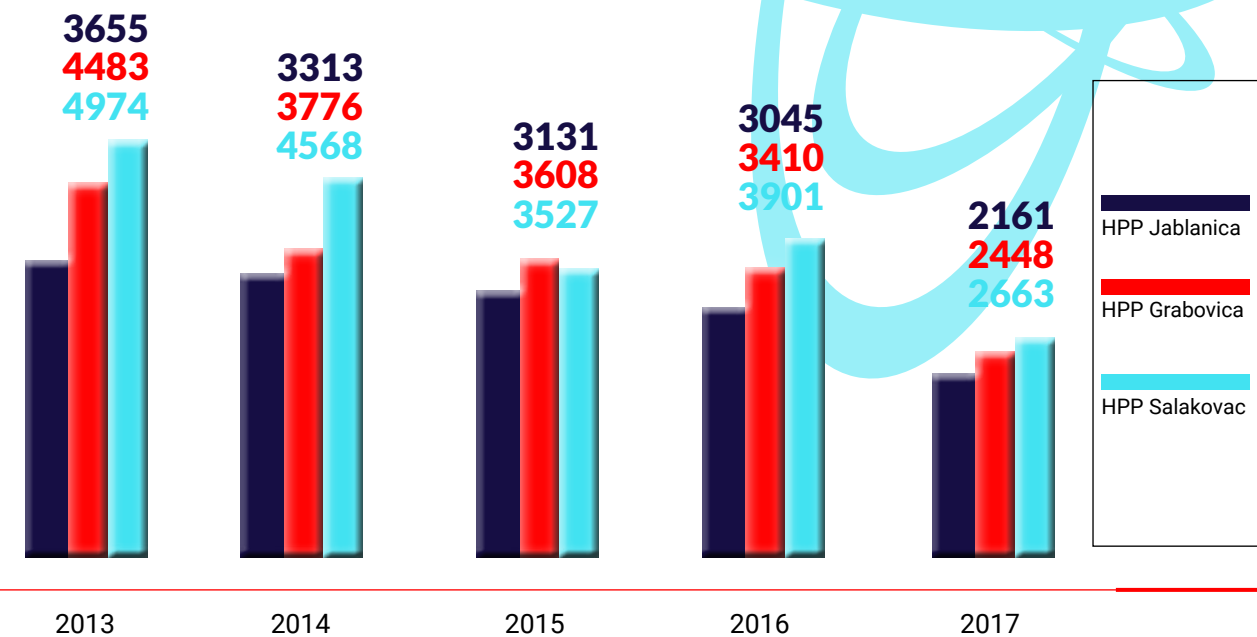
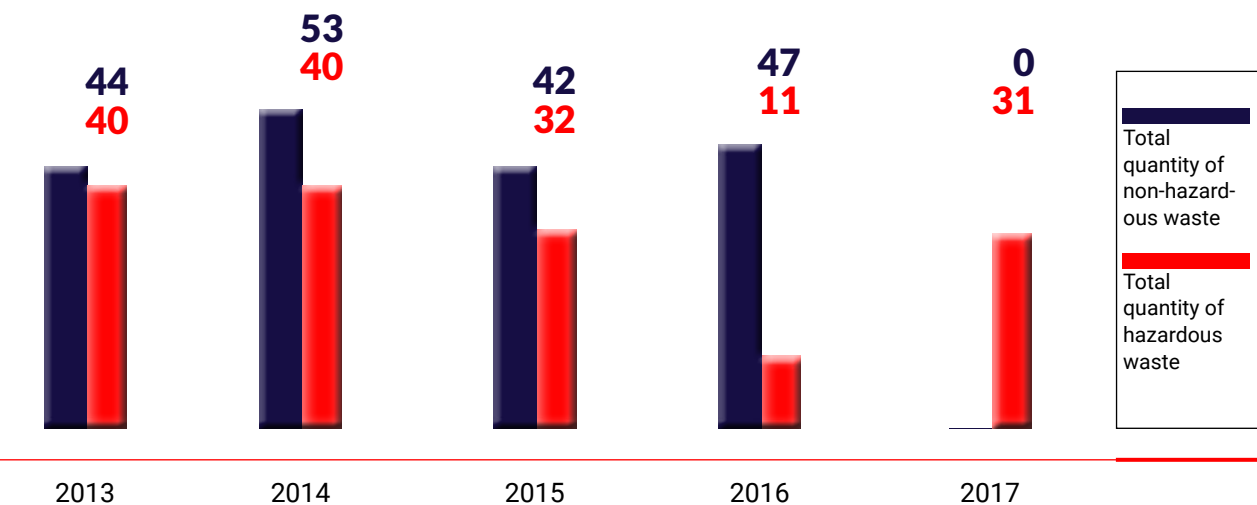


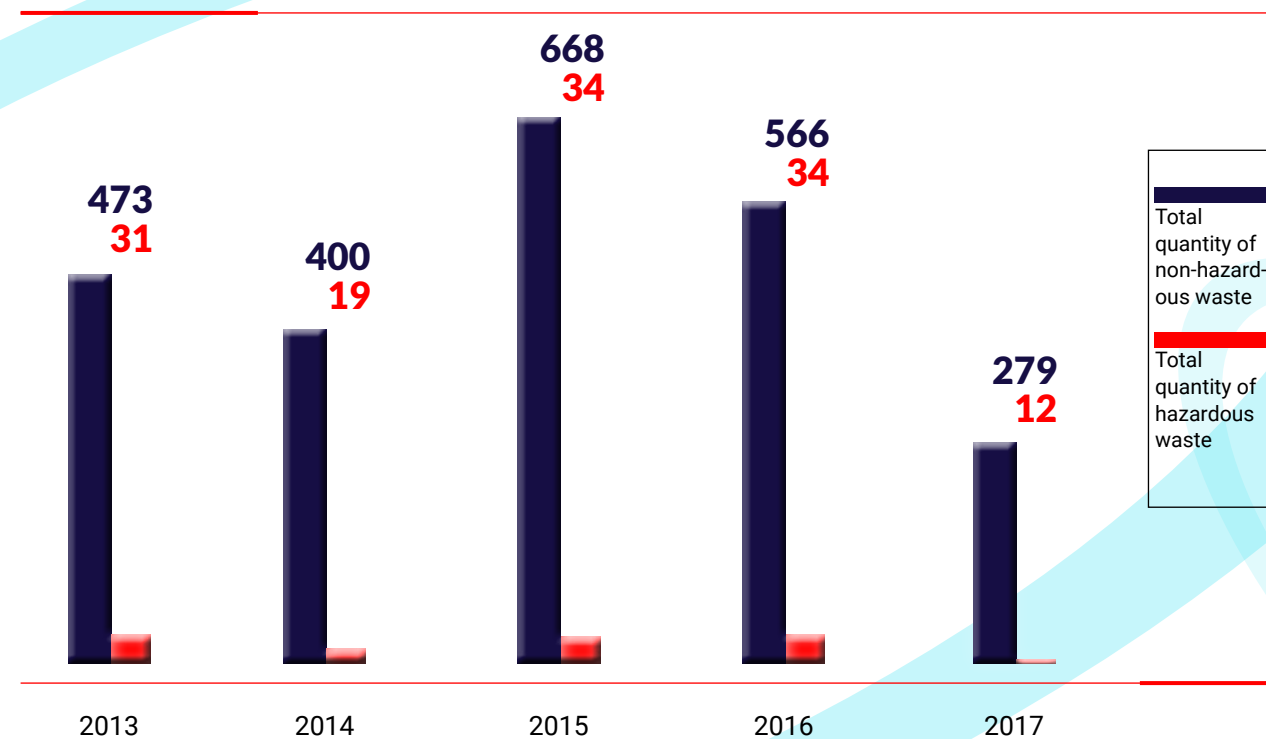
Diagram 16. Total quantity of non-hazardous waste and hazardous waste* in HPPs on river Neretva for the period 2013-2017 (t)



Power distribution subsidiaries

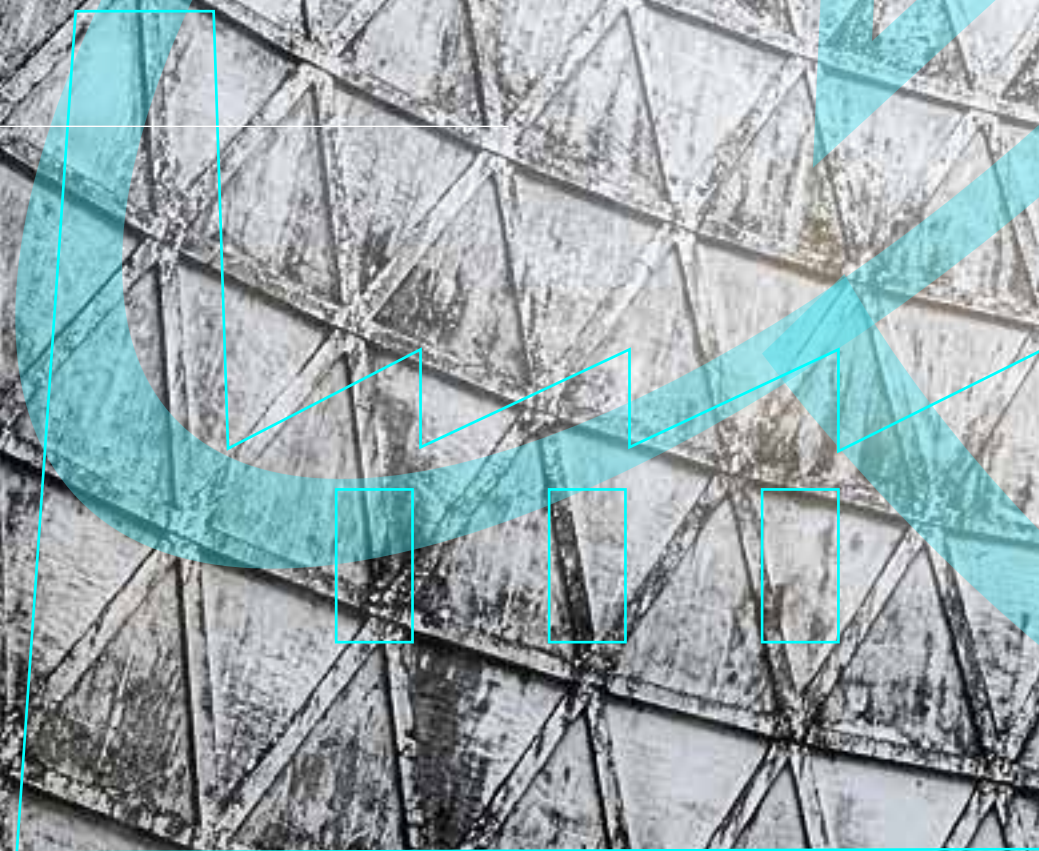


Diagram 17. Total quantity of non-hazardous waste and hazardous waste* in distribution subsidiaries: Sarajevo, Tuzla, Bihać, Zenica and Mostar, for the period 2013-2017 (t)



4

Realization of conditions of environmental and water permits



Thermal power plants

TPP Tuzla

The Decision on Water Permit for Discharging of Technological Waste Water from the site of TPP "Tuzla" Tuzla and from the slag and ash landfill was obtained from the Sava River Basin Agency.

The Project „Building a closed system for circulating water in TPP "Tuzla":

The Project of building a closed system for circulating water has been completed. The said Project has significantly reduced the amount of wastewater, the legislation is complied with as to the quality of waste water which is released into the natural recipient, and the consumption of crude water is reduced.

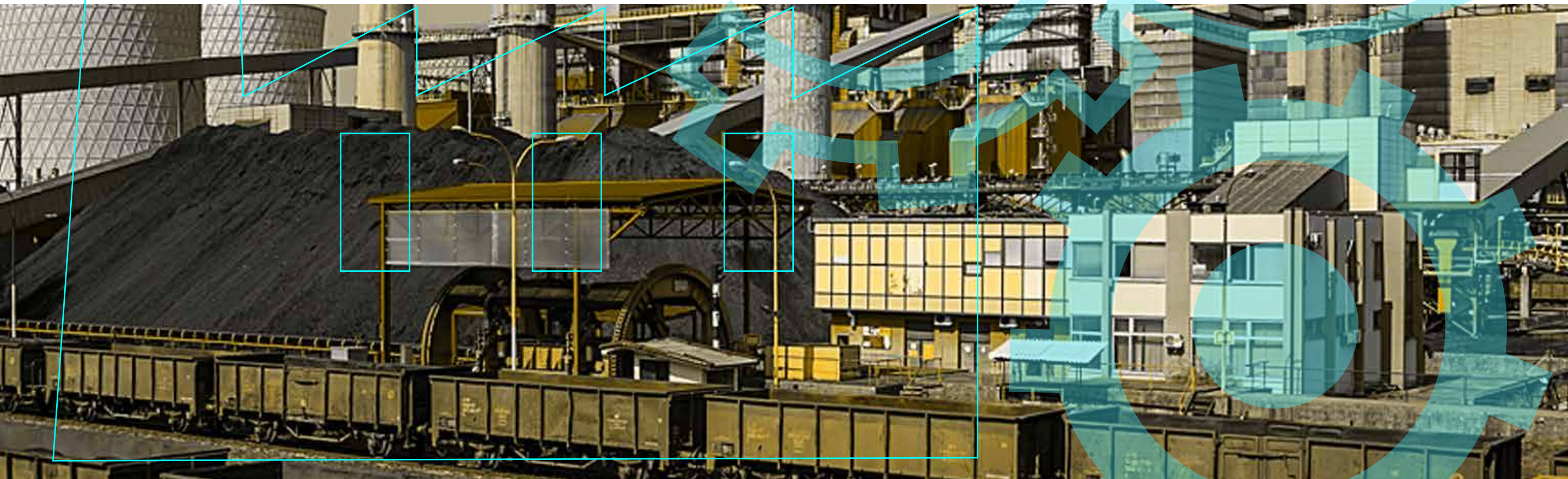
Project of Adaptation of ecological monitoring system according to the Ordinance 09/14

In 2017, the acquisition and installation of equipment for the replacement of the hardware and software part of the ecological monitoring system was carried out, with harmonization of the program for monitoring air emissions with the BAS EN 14181 standard. This has completed and commissioned the project for the Adaptation of ecological monitoring system according to the Ordinance 09/14.

In addition to the mentioned projects, TPP "Tuzla" paid great attention to the accuracy and reliability of the air emissions measurement system. In this respect, the following was carried out:

- Servicing of gas analysers in the system of pollutant emission into the air of Unit 5 Servicing of gas analysers for measuring of concentration (SO₂, NO_x and CO) and the content of (CO₂ and O₂) emission into the air of unit 5.

- Servicing of gas analysers in the system of pollutant emission into the air of unit 6
- Selected contractor and contracted activities for servicing of gas analysers for measuring of concentration (SO₂, NO_x and CO) and content of (CO₂ and O₂) emission into the air of unit 6. Checking the devices for measuring the emissions of pollutants into the air
- The contract has been signed for checking the devices for the continuous monitoring of the system in TPP system "Tuzla" for measuring the emissions of pollutants (AST according to BAS EN14181) for Units 3, 4, 5 and 6. Within this contract, monthly validation of measured data as well as periodic checking of measuring devices are carried out by the method of parallel measurement with certified devices, when there are doubts as to the malfunction of the measuring device.
- QAL-2 check of the air pollutants emission monitoring device. A contract was signed on QAL-2 check of the air pollutants emission monitoring device (QAL-2 according to BAS EN14181 standard) for Units 3, 4, 5 and 6. Within this contract, the calibration of air pollutants emission monitoring devices shall be carried out, by the method of parallel measurement with certified devices, when there are doubts as to the malfunction of the measuring device.





TPP Kakanj

- Initiated activity on obtaining environmental permit for the project of desulphurization and denitrification of flue gases for units 5, 6 and 7, which is necessary in order to obtain other necessary permits;
- Contracted calibration of continuous emission monitoring equipment according to BAS EN 14181 will enable fulfilment of the legal requirements for conducting the process of validation of air pollutant emission from TPP Kakanj
- Measurements of reduction of noise level from unit 7 are initiated in order to check the noise intensity at the noise source and near the thermal power plant. The implementation of this activity means the fulfilment of one of the requirements of the environmental permit.
- Launched activities of calibration of the equipment for air quality monitoring in Kakanj, i.e. calibration of the analyser for measuring of content of NO_x, SO₂, CO, PM₁₀ in air, and the weather parameters, will enable fulfilment of the requirements from the existing environmental permit of TPP Kakanj
- Initiated activities on the achievement of the Preliminary water approval for the project of desulphurization and denitrification of flue gases.

HPPs on River Neretva

HPPs on River Neretva

According to the valid environmental permits for HPP Jablanica, HPP Grabovica and HPP Salakovac, the following activities are regularly conducted:

- Protection of water quality
- Protection of air quality
- Waste management
- Minimizing negative impacts of noise
- Minimizing negative impacts on fauna
- Minimizing other negative impacts on the environment



Power distribution subsidiaries

ED Sarajevo

The requirements from the Environmental Permit for SHPP Osanica are observed (environmentally acceptable flow) and environmental protection measures are implemented.

ED Tuzla

- The following energy facilities belong to the subsidiary “Elektrodistribucija” Tuzla: MHE “Modrac” in Lukavac and MHE “Snježnica” with hydro reservoir in Teočak. For all facilities, the Subsidiary has valid environmental and water permits, and accordingly performs:
- Regular observation of dams and reservoir, control of working parameters, visual control of erosive processes, etc.
- Technical, geodetic and physical observation of the dam.
- Selective separation of waste and keeping records of produced waste quantities
- Restocking of hydro reservoir “Sniježnica”, once a year.

ED Bihać

According to the valid environmental and water permits for HPP “Una” Kostela, Bihać, SHPP, “Bihać” Bihać, and SHPP “Krušnica” Bosanska Krupa, the ordered activities are carried out regularly.

Based on the Environmental and Social Impact Assessment for Phase II of Reconstruction and Expansion of HPP “Una” Kostela, dated 03/05/2017, the Federal Ministry of Environment and Tourism issued a Decision on Environmental Permit with a validity period of five (5) years.



5 Environmental Management System



TPP Tuzla

The certification company has performed II surveillance audit of the Integrated Business Management system of TPP "Tuzla" and assessed that it is fully compliant with the international standards: ISO 9001:2008 and ISO 14001:2004.

Training for internal auditors in ISO 14001: 2015 (12 employees) was conducted. After successful training, the Certificates for R.B.A Auditor were obtained. For the Management of TPP "Tuzla" training has been carried out for the application of new requirements under the BAS EN ISO 14001:2015 standard.

TPP Kakanj

External and internal audits on the application of the requirement of BAS EN ISO 14001 standard were performed.

Documents are in the process of adaptation to the new edition of the Standard.

HPPs on River Neretva

The program was developed to improve the Integrated Management System (IMS) for 2017, based on which the following activities were carried out:

- The Report on the implementation of the IMS Improvement Program for 2017 has been completed,

- A review of the IMS documents was conducted (Management review).
- Internal audit was carried out in all plants/sectors
- An analysis of environmental aspects, that relate to the process of power generation in facilities/sectors was carried out.
- Assessment of compliance of work with legal and other environmental requirements was carried out;
- Recertification audit of integrated management system was conducted by a representative of the authorized certification body, in accordance with requirements of EN ISO 14001:2004;

TPP Tuzla

Recertification Audit was conducted for the extension of validity of the Certification of Environmental Management System BAS EN ISO 14001, with the certification of the system according to ISO 9001, which together form the Integrated Management System - IMS. Activities were carried out to adapt the existing system to the new edition of ISO 14001:2015 standard, and preparations for the system recertification have been made.



A photograph of an industrial facility, likely a water treatment plant, featuring large, curved, metallic pipes and a worker in a hard hat and safety vest crouching on a platform. The image is overlaid with a teal bar chart and a line graph in the bottom left corner, and a large teal number '6' and the text 'Capital investments' on the right side.

6 Capital investments



Unit 7 - 450 MW in TPP Tuzla

Project of Unit 7 of TPP Tuzla follows applicable social and environmental laws, regulations and prescribed permits in BiH and relevant and locally applicable international conventions, standards and agreements, in particular those relating to greenhouse gases (GHG).

In accordance with the Decision, or the obligations under the Treaty establishing Energy Community, The Federal Ministry of Environment and Tourism, on 18/07/2016, issued the Decision on issuing environmental permit number: UP-I/05/2-23-71/15 FM JP Elektroprivreda BiH for the construction of Unit 7 in TPP Tuzla, where the ELVs were regulated in accordance with the F BiH Implementation Regulation, which contained the ELVs from Part I of Annex V to Directive 2010/75/EU ($\text{SO}_2 < 200 \text{ mg/m}^3\text{n}$, $\text{NO}_x < 200 \text{ mg/m}^3\text{n}$ and solid particles $20 \text{ mg/m}^3\text{n}$).

In accordance with the signed EPC contract and according to the forthcoming obligation to harmonize the legislation by 01/01/2018, JP Elektroprivreda BiH, on 19/12/2016, filed to the Federal Ministry of Environment and Tourism the Initiative for amending the measure from the environmental permit of Unit 7 in TPP Tuzla number: 01-4-39181/2016 for amendments to item 5.1 that relate to air emission limit values, i.e. to align the emission limit values with Part 2 of Annex V to Chapter III of the Directive 2010/75/EU on industrial emissions instead with Part 1 of Annex V, transposed in the Rule Book on air emission limit values from the combustion plants (Official Gazette FBiH No. 03/13).

During the period of implementation of the activities of the Federal Ministry of Environment and Tourism under the JP Elektroprivreda BiH Initiative, a mediation was initiated before the Secretariat of the Energy Community in Vienna regarding the issuance of the said Decision for the planned Unit 7 of TPP Tuzla. The procedure was completed by signing the Settlement Agreement between the Energy Community Secretariat and the Federal Ministry of Environment and Tourism (FME&T), which obliges the Federal Ministries of Environment and Tourism to amend the environmental permit for Unit 7 in TPP Tuzla in accordance with the relevant requirements of Part 2 of the Annex V of Directive 2010/75/EU on Industrial Emissions.

Pursuant to the agreement, the JP Elektroprivreda BiH received the Decision no. UP-I/05/223-71/15 SN of 06/10/2017 on amendment of the Decision on the Issuance of an Environmental Permit for the Construction of Unit 7 in TPP Tuzla no. UP-I/05/223-71/15FM of 18/07/2016, which has been adjusted and adopted by the Energy Community Secretariat ($\text{SO}_2 < 150 \text{ mg/m}^3\text{n}$, $\text{NO}_x < 200 \text{ mg/m}^3\text{n}$ and solid particles $< 10 \text{ mg/m}^3\text{n}$). According to the Agreement, after the adoption of the amendments the

Energy Community Secretariat closed the Case ECS-17/16, thus confirming the compatibility of the Environmental Permit with the requirements of Chapter III I of Annex V to the Directive. On 11/12/2017, the Secretariat published (<https://www.energy-community.org/news/Energy-Community-News/2017/12/11.html#!#>).





Unit 8 - 300 MW in TPP Kakanj

The Terms of Reference was prepared - for the innovation of the Preliminary Design of the Replacement Unit 8 of TPP Kakanj. 08-1-29484/16, of 27/09/2016. According to the Terms of Reference, changes were proposed in relation to the Investment, Technical and Environmental Documentation prepared in 2010. According to the Terms of Reference, Tender Documentation has been prepared for innovation of the Preliminary Design for Replacement Unit 8 in TPP Kakanj, which should contain all necessary elements that enable the building of the unit in accordance with the best available combustion plant techniques - LCP BAT (Best Available Techniques) as well as in accordance with the air emission limit values, i.e. to align the emission limit values with Part 2, Annex V of Chapter III of Directive 2010/75/EU on industrial emissions, instead with Part 1 of Annex V, which is transposed in the Rule Book on Air Emission Limit Values from combustion plants (Official Gazette of FBiH no.: 03/13).

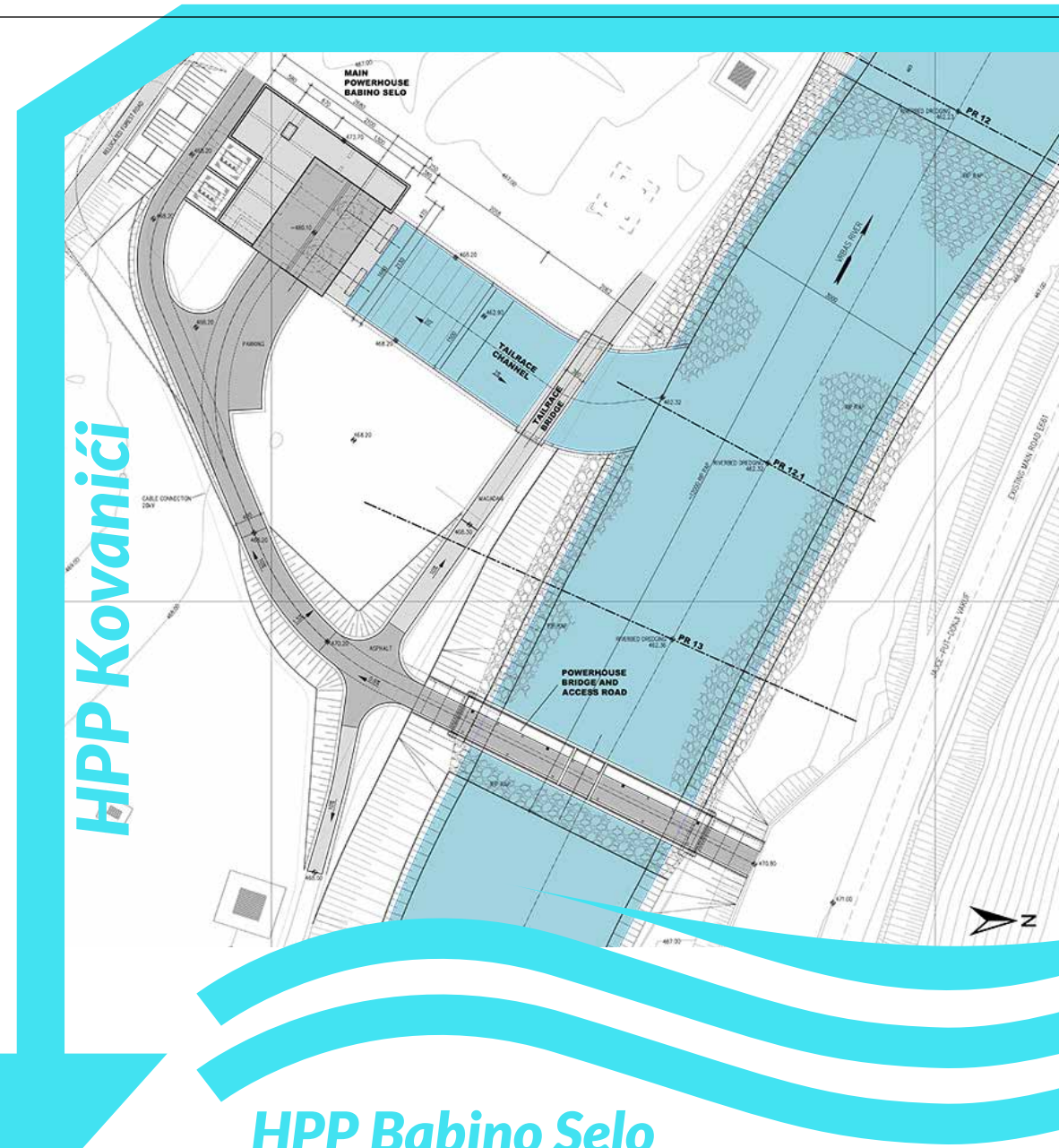
Permits renewed and obtained in 2017:

- Renewed Preliminary Water Approval No. UP-I/25-1-40-404-3/17 of 07/07/2017 issued by „The Sava River Basin Agency“ Sarajevo;
- Renewed Environmental Permit No. UP-I/05-23-11-66/17 of 07/07/2017, issued by the Federal Ministry of Environment and Tourism. The environmental permit prescribed the air emission limit values of SO₂ < 200 mg/m³n (in the case of combustion in circulating fluidised bed), NO_x < 200 mg/m³n and solid particles < 10 mg/m³n
- Renewed Conditions for Connecting to the 400 kV Nb.03-2351/17 Transmission Grid of 29/03/2017, issued by Elektroprenos BiH.



Hydro power plants Janjići, Kovanići and Babino Selo

During 2017, continuous monitoring of groundwater levels on installed piezometers continued.



HPP Babino Selo



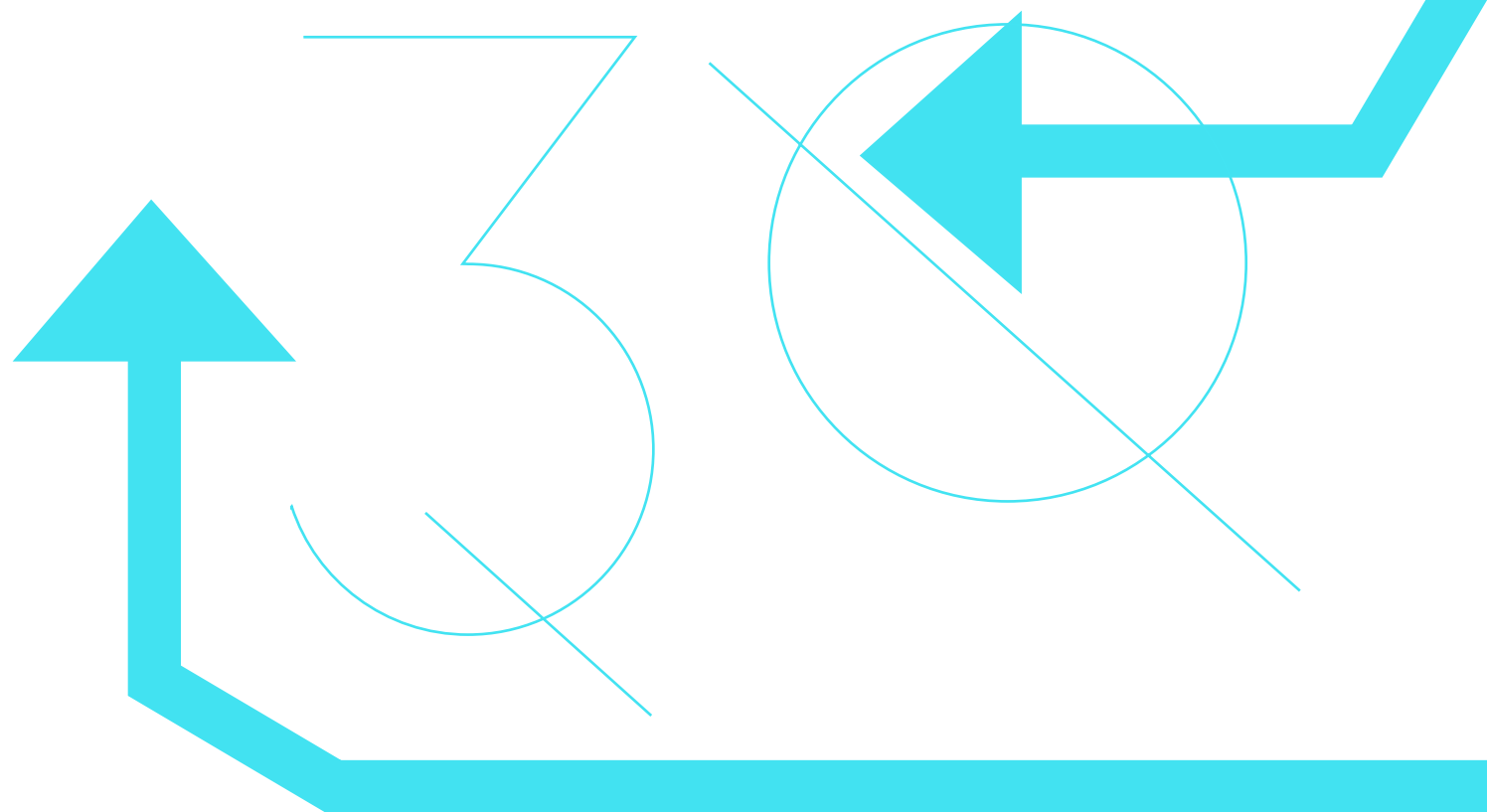
HPP Janjići

WF Podveležje 1

In December 2017, an amendment was signed to an existing consultancy contract funded from GRANT funds, and refers to:

1. Review of the existing document „Gap Analysis“ and identification of items that were not done in accordance with „IFC performance“ standards and documents of other relevant international bodies that deal with this issue.
2. Implementation of identified items and ultimately preparation of the Environmental Impact Study ESIA for the WF Podveležje Project

These activities started in the second half of 2017.



15 SHPPs on the Neretvica River Basin

Federal Ministry of Environment and Tourism issued a Decision on Renewed Environmental Permits for Phase I of the Project for four SHPPs: Gorovnik ušće, Gorovnik, Crna rijeka and Srijanski most, and Decisions on Renewed Environmental Permits from Phase II and III of the Project Phase for 5 SHPPs: Plavuzi, Prolaz, Poželavaka, Ruste and Duboki potok 1, by the Ministry of Trade, Tourism and Environmental Protection of HNK.





7 Preparation of planning and study documents



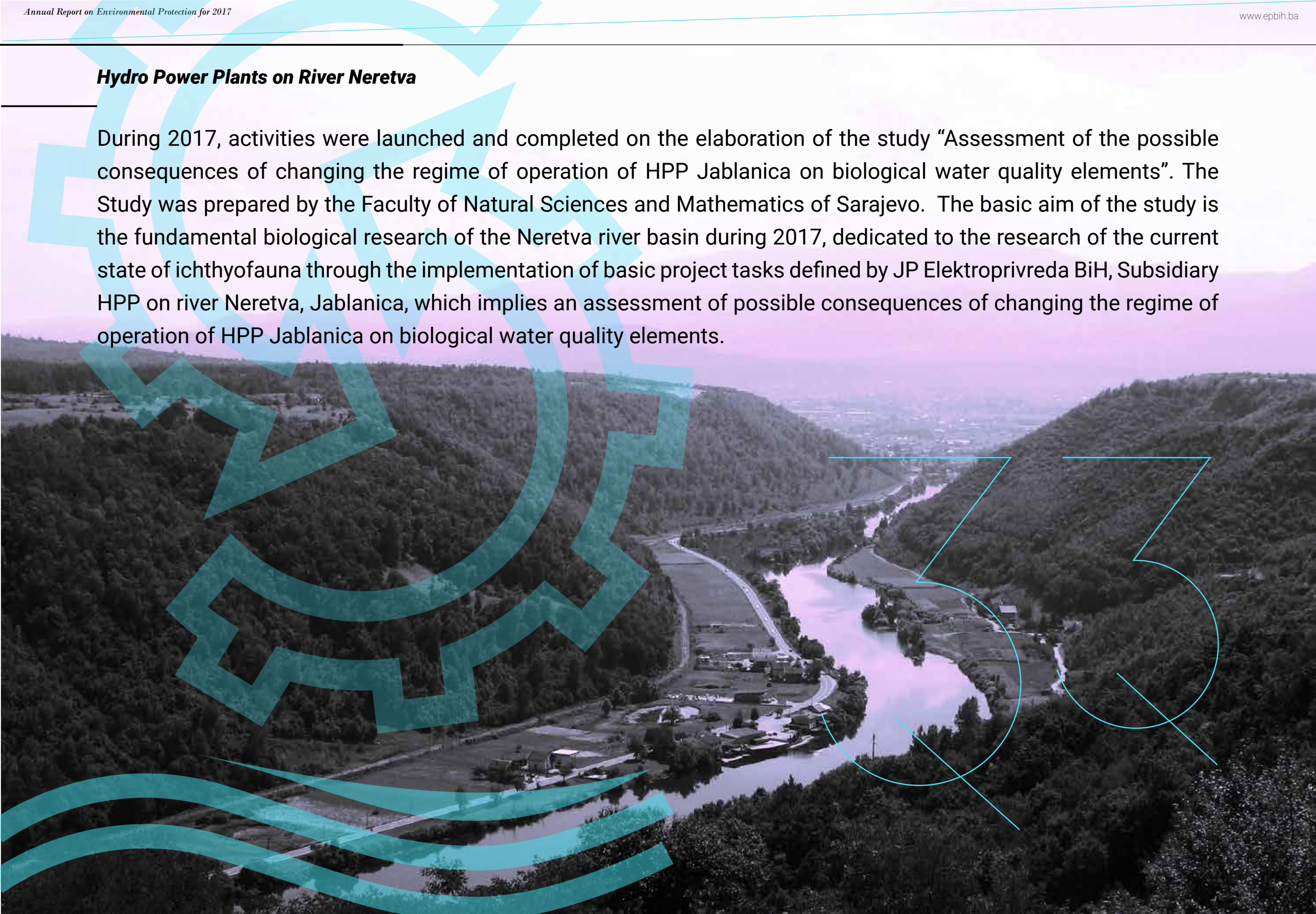
Hydroelectric power plant Una Kostela, Bihać - project of continuation of reconstruction and extension

Also, in 2017, the research was continued and completed on preparation of the Study on environmental flow of the river Una on the profile of HPP Una Kostela, with the aim of analysing the ecological status of the water body under the impact of the hydroelectric power plant. Hydrological, biological and physical - chemical studies were carried out within this Study. Based on the research carried out under this Study, as well as the available results of earlier research and monitoring, the environmental status of the water body in the affected area of HPP Una Kostela was rated “good”, thus achieving the overall objective of environmental protection and water management according to the Water Framework Directive and the Law on Waters.

The Study has established that for the section of the watercourse, within the scope of HPP Una Kostela (250-300 m long), a quantity of 2.0 m³/s can be discharged, with no consequences for deterioration of the present status of Una watercourse.

Hydro Power Plants on River Neretva

During 2017, activities were launched and completed on the elaboration of the study “Assessment of the possible consequences of changing the regime of operation of HPP Jablanica on biological water quality elements”. The Study was prepared by the Faculty of Natural Sciences and Mathematics of Sarajevo. The basic aim of the study is the fundamental biological research of the Neretva river basin during 2017, dedicated to the research of the current state of ichthyofauna through the implementation of basic project tasks defined by JP Elektroprivreda BiH, Subsidiary HPP on river Neretva, Jablanica, which implies an assessment of possible consequences of changing the regime of operation of HPP Jablanica on biological water quality elements.



Sector for strategic development

In the segment of study and planning documents in 2017, the following projects/studies were implemented:

- Completed Preliminary Design of Heating of Živinice from TPP Tuzla (Preliminary Design was revised by the internally formed team of EPBiH)
- Prepared terms of project and tender documentation for the Preliminary Design of heat energy supply of the area to/and Sarajevo from TPP Kakanj.
- Prepared terms of project and tender documentation for the innovated Preliminary Design of Unit 8 of TPP Kakanj.
- Continued activities on the implementation of the Horizon 2020 Project CoolHeating.
- Preparatory activities for the feasibility study for WF Bitovnja - preparing the terms of reference within the call for expressions of interest.
- The pilot project: Installation of the first public charging station for electric vehicles at the site of JP EPBiH.
- The Study "Perspective of Development of New Business of JP Elektroprivreda BiH in the Electric Vehicle Charging Sector".



8 Costs in Environmental Protection



In the JP Elektroprivreda BiH, for the time being, no special records are kept on investments and costs for implementation of plans and programs in the domain of environmental protection and natural resources. Funds are planned and realized in the framework of investments and regular maintenance of plants and facilities. There is no harmonized procedure for presenting objective indicators of total costs in realized activities, which includes the fees for the use of natural resources. Therefore, it is difficult to provide safe and complete data on total spent funds of JP Elektroprivreda BiH d.d. – Sarajevo, in that context. According to the data available for the preparation of this document, the total amount is **36,882,443 KM**. This indicator is a confirmation that environmental protection is an important part of the total business of our company also in financial aspect.

The Table 5, according to available data, provides costs of environmental protection by subsidiaries, at the level of the Company Directorate, and the total for JP Elektroprivreda BiH d.d. – Sarajevo.



Table 5. Environmental Protection Costs in the Domain of Environmental Management

Organization	(KM)
Subsidiaries:	
TPP Tuzla	2.675.338
TPP Kakanj	1.079.050
HPPs on River Neretva	3.185.762
ED Sarajevo	428.879
ED Tuzla	605.224
ED Zenica	1.433.622
ED Bihać	500.323
ED Mostar	192.862
Fee for air pollution of TPP Tuzla	2.290.368
Fee pursuant to the Law on the allocation of part of the revenues generated by work of TPP	5.208.401
Fee for water protection	638.546
Fee for air pollution of TPP Kakanj	3.521.760
Fee pursuant to the Law on the allocation of part of the revenues generated by work of TPP	3.819.700
Fee for water protection	379.740
Contributions for hydro reservoir (HPP on river Neretva)	9.414.096
Fee for water protection HPPs on river Neretva	6.683
Company Directorate	
Capital investments	1.216.700
Water charges and communal utilities Water charges and utilities services	285.389
UKUPNO:	36.882.443



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