ENERGOPROJEKT

JULY - DECEMBER 2021.

2022
HAPPY
HOLIDAYS!

HAPPY HOLIDAYS!

2021 was the year of Energoprojekt. In July, the company marked 70 years of successful business operations. A little later this year, Entel company within Energoprojekt Group marked its 2 significant jubilees: 30 years in Qatar and 25 years in Oman.

With commitment of the management and the employees, despite great challenges related to business operations under the circumstances of the pandemic, we managed to preserve the health of our employees and ensure the continuity of our business operations and implementation of signed contracts under these difficult and challenging conditions.

Hidroinzenjering continued the trend of successful contracting of new projects in home country and abroad. They worked on preparation of technical documentation for construction of RHPP Bistrica, observation of 13 dams of Drina and Lim hydropower plants, preparation of design documentation for maintenance and revitalisation of Drina and Lim hydropower plants and reconstruction of HPP Djerdap 2. They completed preparation of Detailed Design and tender documentation for Sidi Naceur dam in Algeria, Schematic Design and Environmental Impact Assessment Studies for HPP Komarica in Montenegro etc. Entel continued their successful engagement in capital water supply projects and projects of solar power plants and wind farms in the countries of the Middle East and Serbia. They completed the contract for construction of thermal power plant – thermal station in Pancevo Oil Rafinery, and, as planned, are rendering services of FIDIC engineers on construction of TPP Kostoplac B and thermal power plant and thermal station and cogeneration plant for energy-from-waste plant in Vinca. Apart from execution of signed contracts, EP Urbanizam i arhitektura and EP Industrija successfully signed a large number of new contracts for the projects in Serbia, with long-standing and major new clients such as Johnson Electric and Atlantic Stark. Visokogradnja successfully completed the works on construction of the Republican Stadium in Syktyvkar (Russia) and construction of the new office building of Delta Holding in Belgrade, it is nearing completion of the works on Hyatt Hotel in Rostov-on-Don. Together with EP Industrija and EP Oprema, Visokogradnja is completing construction of new Air Traffic Control Tower and Annex to the office building at Nikola Tesla airport in Belgrade. Apart from implementation of projects in Serbia (execution of the works on construction of Vinca landfill, technical and passenger station in Zemun, railway track Jajinci – Mala Krsna, Patrijarha Pavla Street), Niskogradnja also signed two new contracts in Uganda in the value of 90 million euros in the beginning of the year. New business challenges await us in 2022 and, in the tradition of Energoprojekt, we will respond to them with commitment, quality and professionalism

We wish a happy New Year to our employees, shareholders, clients and business partners. We wish you good health, lots of success, beautiful and joyful moments! Happy holidays!

year LVIII

In accordance with modern trends and digitalization, starting from January 2021 Energoprojekt (newspaper) will be published twice a year as online edition.
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http://www.energoprojekt.rs/ep-list/?lang=en

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In the period from January to September 2021, Energoprojekt Group realised a consolidated income in the amount of 149.7 million euros, gross profit of 4.9 million euros and signed contracts for new projects in the amount of 47.1 million euros.

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ENTEL SIGNED A CONTRACT FOR DESIGN OF ANOTHER WIND FARM IN SERBIA

In November 2021. ENTEL signed two new constracts for the preparation of technical documentation for the upgrade of 400 kV switchgear "Cibuk 1", construction of new 400/35 kV substation "Vetrozelena", as well as the contract for construction of new wind farm "Vetrozelena".

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FOUR NEW CONTRACTS WITH THE MINISTRY OF JUSTICE ON PREPARATION OF TECHNICAL DOCUMENTATION

In the fourth quarter of 2021, JSC Urbanizam i arhitektura signed with the Administration for the Enforcement of Penal Sanctions of the Ministry of Justice of the Republic of Serbia four new contracts on preparation of technical documentation.

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EP HIDROINŽENJERING - STRATEGIC BUILDING IN THE REGION IN THE LIGHT OF ENERGY AND ENVIRONMENTAL CHALLENGES

How to find a compromise of energetics and ecology? How to provide the benefits that this facility could bring to Montenegro and the region and simultaneously preserve the indisputably unique natural beauty and riches of the considered locality? An answer to these questions was given by a Team of EP Hidroinženjering professionals in consortium with the Water Management Institute Jaroslav Cerni, through preparation of technical documentation, various design drawings and studies.

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30 YEARS OF SUCCESSFUL BUSINESS OPERATIONS OF ENTEL IN QATAR AND 25 YEARS IN OMAN

In the year of Energoprojekt's 70th birthday, EP ENTEL marks two significant anniversaries: 30 years of continuous and successful business development in Qatar and 25 years in Oman.

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ENERGOPROJEKT HIDORINZENJERING – A PLACE WHERE YOU CAN ACQUIRE VAST EXPERIENCE, PROFESSIONAL KNOWLEDGE AND BEAUTIFUL MEMORIES

In November, we spoke with three engineers with significant experience in design and management of projects of hydropower plants, dams, water supply systems and other water management structures. We hereby convey their experiences, thoughts and messages to younger colleagues.

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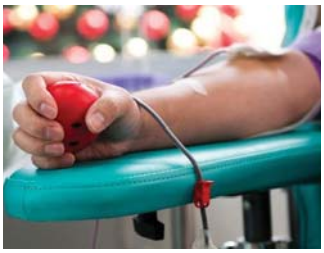


ENERGOPROJEKT REALISED TWO VOLUNTARY BLOOD DONATION INITIATIVES

In 2021, in the specific conditions of COVID-19 pandemic, with taking precautionary and safety measures, Energoprojekt in cooperation with the Blood Transfusion Institute of Serbia successfully realised two blood donation initiatives in January and May of 2021.

JSC HOLDING

MANAGEMENT CHANGES

In the previous period, management changes occurred in Supervisory and Executive Board of JSC Holding and the boards of directors of two companies: JSC Urbanizam i arhitektura and Park 11.

Supervisory Board of JSC Holding is composed of: Miodrag Zecevic (Chairman), Dragan Ugrcic (member), Aleksandar Scekic (member), Nada Bojovic (independent member).

Executive Board of JSC Holding is composed of: Dobroslav Bojovic (General Manager), Sinisa Tekic (Executive Director of Finance, Accounting and Financial Planning), Momcilo Jevtic (Executive Director for Legal Affairs), Ilijana Stamenkovic (Executive Director of Operations).

Board of Directors of JSC Urbanizam i arhitektura is composed of: Gorana Cankovic (Executive Director), Rajko Tepavac (Non-Executive Director), Miodrag Zecevic (Non-Executive Director).

Nikola Lalevic is appointed as the Director of EP Park 11.

JSC HOLDING

ADOPTED PERIODIC REPORT ON THE OPERATIONS OF ENERGOPROJEKT GROUP FOR JANUARY-SEPTEMBER 2021

In the beginning of November of the current year, Executive Board of JSC Energoprojekt Holding considered and adopted the periodic report on the operations of Energoprojekt Group for January – September 2021 and the business forecast for 2021.

In the period from January to September 2021, Energoprojekt Group realised a consolidated income in the amount of 149.7 million euros, gross profit of 4.9 million euros and signed contracts for new projects in the amount of 47.1 million euros.

From the aspect of total realised consolidated income and gross income of Energoprojekt Group, it has been established that, seen as a whole, business operations in the period from January to September 2021 were on the lower level compared to the planned parameters of the operations for the reporting period, but, at the same time, at a somewhat higher level compared to the parameters of the operations realised in the same period of the previous year. Contracting new projects was considerably below the planned level. Apart from the business reasons, the above results of the business operations were considerably affected by the adverse effects of the global pandemic caused by virus Covid 19.

In the period from January to September 2021, the following key business parameters of Energoprojekt Group were realised:

- The realised consolidated income in the reporting period was 149.7 million euros, which is 83% of the planned level.

In the structure of the total income, the business operations in the home country participated with 57%, whereas the business operations abroad participated with 43%. Active projects (acquired by 31.12.2020) dominated the structure of business income with 92%, whereas the new projects (acquired in 2021) participated with 8%. The region of Serbia had the most important market share of 57% in the realised total income, the region of Russia and Eurasia (Russia, Kazakhstan) 20%, the region of Middle East (Qatar, UAE, Oman, Jordan) 13%, the region of Africa (Uganda, Ghana, Algeria, Zambia, Zimbabwe and Guinea) 8% and the region of South America (Peru) 2%.

In the period from January to September 2021, JSC Energoprojekt Holding (parent company) realised non-consolidated income in the amount of 11.4 million euros.

- Realised consolidated gross income in the reporting period amounted to 4.9 million euros, which is 71% of the planned income.

In the period from January to September 2021, JSC Energoprojekt Holding (parent company) realised non-consolidated gross income in the amount of 8.3 million euros.

- In the first three quarters of 2021, new projects in the total value of 47.1 million euros were acquired: 12.1 million euros (26%) in the home country and 35 million euros (74%) abroad.
- On the last day of the reporting period, acquired projects in the value of 236.8 million euros remained for implementation in Energoprojekt Group (74.5 million euros in the home country; 106.7 million euros on construction sites abroad and 55.6 million euros in foreign entities).

In mid-November of the current year, the Executive Board of JSC Energoprojekt Holding considered and adopted the quarterly report of JSC Energoprojekt Holding for the third quarter of 2021.

In the three quarters of the current year, parent company JSC Energoprojekt Holding realised the total non-consolidated income in the amount of 1,341,058 thousand dinars and gross profit of 971,473 thousand dinars. In relation to the comparative period of the previous year, the increase in gross results of the Company is predominantly the result of the realised income based on the dividends of the related companies Energoprojekt Park 11 LLC and JSC Energoprojekt Entel.

In accordance with the Law, on November 15th of the current year, the above report was fully published on the web pages of the Company, Belgrade Stock Exchange and the Securities Commission of the Republic of Serbia.

JSC ENTEL – another new contract in the field of renewable energy sources

ENTEL SIGNED A CONTRACT FOR DESIGN OF ANOTHER WIND FARM IN SERBIA

Bearing in mind the profitability of the use of wind as a renewable energy source and the fact that the demand for the so-called green power has been constantly growing in the last decade, significant activities have been observed of private investors in the Republic of Serbia willing to use the available wind potential and generate electric power in their wind farms which, on the one side, will meet the demands of the consumers and, on the other hand, lead to reduction of toxic gases from standard fossil fuel power plants.

As one of the leaders among the companies dealing with project development in the field of renewable energy sources, company CWP Global recognized Entel in 2012 as a company with long-standing experience that could hold great significance throughout the development of wind farm project "Cibuk 1". A job well done and a very satisfied client on the project of preparation of technical documentation for construction of wind farm complex "Cibuk 1", with design services provided on the construction of the wind farm with capacity of 158 MW, related medium voltage cabling system, 400 kV switchgear "Cibuk 1" and 400/35 kV substation "Cibuk 1", led to company CWP Global re-selecting Entel as their partner for the new project in the field of renewable energy sources. This way, Entel signed two new contracts in November with the above client, namely contract for preparation of technical documentation for the upgrade of 400 kV switchgear "Chibuk 1", construction of new 400/35 kV substation "Vetrozelena", as well as the contract for construction of new wind farm "Vetrozelena".

Wind farm "Vetrozelena" will be located in the north-eastern part of Pacevo Municipality, in the vicinity of villages Dolovo and Mramorak, right next to wind farm "Cibuk 1". Wind farm will have the installed capacity of approx. 300 MW and a maximum of 50 wind turbines, which will rank it among the largest wind-driven power plants in Serbia.

Entel is by contract in charge of preparation of technical documentation (concept design, schematic design and design development phase) for wind farm, access roads with permanent and temporary wind turbine handling areas and internal medium-voltage system for connecting wind turbines with substation. Also, Entel will provide the so-called permitting services as assistance to the client during obtainment of all required permits and approvals up to obtainment of building permit.

Prospective wind farm VETROZELENA shall consist of up to 50 wind turbines with total capacity of 300 MW

By acquiring a contract for a project as significant as wind farm "Vetrozelena", Entel reaffirmed its position as a leader in provision of design and consultancy services in the field of renewable energy sources and showed willingness to actively participate in energy transition of not only of our country, but of other countries as well, which will inevitably lead to the reduction of the share of electric power generation from fossil fuels, primarily coal, with the purpose of reduction of the emission of toxic gasses. It is good to know that the tradition of continuous cooperation with the same clients is still alive, which is the best proof of the client's satisfaction with the quality of the services previously rendered.

This way the list of Entel's reference contracts in the field of green power generation continues, primarily in terms of use of solar and wind energy potential, which include a large number of successfully completed projects that served Entel well in building its expertise in the above field in home country and abroad for almost a decade.

JSC URBANIZAM I ARHITEKTURA – new project in Krusevac

PREPARATION OF TECHNICAL DOCUMENTATION FOR CONSTRUCTION OF JUDICIAL BUILDING IN KRUSEVAC WAS AWARDED TO THE COMPANY IN PUBLIC PROCUREMENT PROCEDURE

JSC Energoprojekt Urbanizam i arhitektura as the project holder, together with the members of the group of bidders JSC Energoprojekt Entel and Elektroprojekt LLC from Subotica, was awarded in an open public procurement procedure, the project of preparation of technical documentation for construction of the judicial building in Krusevac. The contract for preparation of technical documentation was signed with the Client, Ministry of Justice of the Republic of Serbia in November 2021, and includes preparation of Concept Design for preparation of Urban Design and obtainment of location conditions, preparation of Design Development Phase and Construction Documentation.

The planned users of prospective building are all judicial bodies of the city of Krusevac, namely: Higher Court, Higher Public Prosecutor's Office, Magistrates' Court, Magistrates' Public Prosecutor's Office, Misdemeanour Court, Commercial Court in Kraljevo, Court Unit in Krusevac and City Attorney's Office.

Technical documentation should spatially, functionally, technically and technologically define the facilities for the prospective users of the building, as per the modern conditions and work standards, aimed at construction of a modern, functional building that would meet the needs of the users both in terms of functionality and safety.

Design Brief defines the building which consists of two spatial and organizational units with separate entrances, connected with a covered passage, a heated corridor from the ground floor. One part of the building would accommodate prosecutor's offices, i.e. Magistrates' Public Prosecutor's Office and Higher Public Prosecutor's Office, as well as City Attorney General. The second part of the building would accommodate courts: Magistrates' Court, Higher Court, Misdemeanour Court and Commercial Court of Kraljevo – unit in Krusevac.

Our designers are facing the challenge of designing optimal functional spatial organization based on the intended uses of each section, taking care of the circulation of users and clients within the building, security, efficiency and mode of operation, finishes and suitable level of aesthetics, as per the planned multi-functional use of space.

JSC URBANIZAM I ARHITEKTURA – new contracts

FOUR NEW CONTRACTS WITH THE MINISTRY OF JUSTICE ON PREPARATION OF TECHNICAL DOCUMENTATION

In the fourth quarter of 2021, JSC Urbanizam i arhitektura signed with the Administration for the Enforcement of Penal Sanctions of the Ministry of Justice of the Republic of Serbia four new contracts on preparation of technical documentation.

Contract has been signed for the preparation of the entire design documentation which includes preparation of Geomechanical Report, Concept Design for obtainment of location conditions, Schematic Design which is to receive positive opinion from the Audit Committee of the Provincial Secretariat for Energy, Construction and Transport, Design Development Phase and Construction Documentation, as well as preparation of documentation for the procedure of selection of a contractor, for the purpose of demolition of the existing building and design of the new pavilion within the existing prison in Sremska Mitrovica.

In addition to this, a contract on preparation of design documentation for the new building – hospital in Correctional Facility in Nis was signed on November 29th, 2021 and includes preparation of Concept Design for the purpose of obtainment of location conditions, as well as Demolition Design with technical control for the old building prone to collapsing.

Apart from these projects, Decision was made in public procurement procedure on award of contract of significant value for preparation of the entire design documentation for the purpose of construction of a new prison in Krusevac (Land Reallotment Design, Urban Design, Concept Design, Schematic Design, Design Development Phase with Technical Inspection Report and Construction Documentation), as well as on award of contract on preparation of the entire design documentation for legalisation of the existing building – County Jail in Leskovac.

Signing of new contracts reaffirms and continues in the best possible way a continuous, successful cooperation with the Ministry of Justice initiated way back in 2012, on the preparation of technical documentation for construction of public buildings all over Serbia that hold great significance for the Republic of Serbia. Since some of these projects are marked as strictly confidential, we are unable to present them in more detail, but Architect Amila Strujic, Principal Designer who excelled in working on such specific and challenging projects, shared with us some of her rich and valuable experience.

"Apart from a complex functional solution, which requires fulfilling a large number of client's requirements arising from the specific use of the project and combining different facilities within one organizational unit of the complex, these buildings also have to meet special requirements of the Department of Security pertinent to specific circulation routes, arrangement of control points and installation of specific equipment", explained architect Amila Strujic.

Continuous contracting of new projects in this field is the best proof of satisfaction of the Client – Ministry of Justice, throughout the long-standing successful business cooperation and constitutes an exceptional professional challenge for Energoprojekt Urbanizam i arhitektura, which requires specific professional technical and technological knowledge and enables acquisition of new experiences and references for the projects of this and similar uses.

JSC URBANIZAM I ARHITEKTURA – new project in Beska

PREPARATION OF DESIGN DOCUMENTATION FOR CONSTRUCTION OF A SPORTS HALL IN BESKA – INDJIJA MUNICIPALITY

On November 29th 2021, in a public procurement procedure, a decision was made to award a contract to a group of bidders: JSC Energoprojekt Urbanizam i arhitektura (Group Leader) and JSC Energoprojekt Entel for preparation of design documentation for construction of Sports Hall in Beska, for Indjija Municipality as the Client.

The subject of the contract is preparation of Concept Design, Design Development Phase with performed technical control and obtainment of building permit, as well as Construction Documentation.

Design Brief requires that the sports hall be designed as a free-standing structure with arena with approx. dimensions of 20m x 40m and capacity of 450 seats. The hall is envisaged as a multi-purpose hall for basketball, volleyball, handball, futsal etc. with all necessary rooms (technical block, changing rooms with sanitary facility, corridors leading to the arena, rooms for equipment and props) and tiers above the rooms.

Design documentation also includes landscaping in the form of construction of access road and pathway, landscaping of free and green areas.

JSC URBANIZAM I ARHITEKTURA – new project in Nova Varos

PREPARATION OF TECHNICAL DOCUMENTATION FOR CONSTRUCTION OF A LUXURY RESIDENTIAL COMPLEX IN NOVA VAROS

In a public procurement procedure, JSC Urbanizam i arhitektura was awarded the project of preparation of technical documentation for performance of works on construction of residential complex in Nova Varos for Nova Varos Municipality as the Client.

The contract includes preparation of Concept Design with 3D presentation and Concept Design covers the entire complex with urban design solution, as well as concept design solutions for different types of apartments.

Concept Design which is currently being prepared provides for the residential complex to contain a total of 31 residential unit designed as buildings in a row with separate entrance for each apartment, with a maximum number of floors consisting of ground floor, first floor and attic. Three types of residential units are designed with approx. areas: 243m2, 230m2 and 185m2. Each apartment is provided with a garage on the ground floor level of the building. Total gross area of the planned complex is approx. 7,200.00m^2.

The authors of the Concept Design of the complex are Architects Milka Ilic Masic and Darija Raseta.

JSC INDUSTRIJA – new contracts with a company from Atlantic Group

ENERGOPROJEKT INDUSTRIJA SIGNED 3 CONTRACTS WITH ATLANTIC STARK COMPANY

In November 2021, following several months of negotiations, JSC Energoprojekt Industrija signed 3 cooperation contracts with Atlantic Stark for three new projects:

Renowned company Atlantic Stark, a member of successful Atlantic Group, recognized Energoprojekt Industrija as a responsible and reliable company with multi-decennial experience in design of industrial buildings and trusted them with the preparation of design documentation for construction and reconstruction of production plants for confectionery products.

Cooperation with Atlantic Stark is one more excellent opportunity for EPI to demonstrate their professionalism and dedication to the quality preparation of design documentation and to justify their name and reputation in business circles.

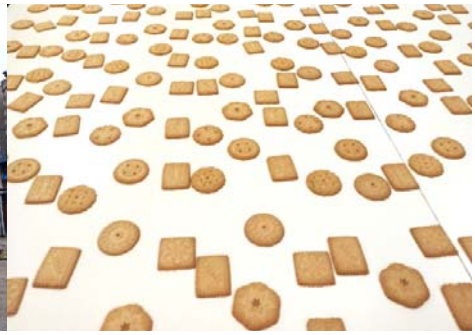
As a part of the first contract, it is necessary to prepare As-built Drawings of Atlantic Group (Atlantic Stark) complex for:

- production part with an area of 21,785.00 m^2
- warehouse with an area of 4,016.00 m^2
- Dessert line 2,500.00 m^2,

EP Industrija is contractually bound to perform the following works:

- Preparation of As-Built Drawings
- Preparation of Construction Documentation and Detailed Fire Protection Design for dessert line

The second contract covers preparation of Construction Documentation for waffle line, Atlantic Group (Atlantic Stark), with a total area to be designed of 1,600 m^2, whereas the third contract requires preparation of the entire design documentation and obtainment of all necessary permits and approvals for packaging line, Atlantic Group (Atlantic Stark), Ljubovija branch. Design should include the change of use of warehouse into a packaging area as



well as upgrade of the new warehouse. Total area to be designed is 1000 m^2, out of which 500 m^2 of existing area and 500 m2 of the new area (warehouse).

Offer for preparation of design documentation for waffle line includes the following scope of works:

- Preparation of cadastral and topographic plan of the complex for the purpose of preparation of design documentation;
- Preparation of Construction Documentation;
- Preparation of Detailed Fire Protection Design;
- Preparation of Fire Zone Report;

Design of the change of use of warehouse into packaging area and design of new warehouse in Ljubovija branch by company EP Industrija shall include the following works:

- surveying of the existing condition;
- preparation of Concept Design for the purpose of obtaining location conditions;
- preparation of request for deciding on the need to prepare Environmental Impact Assessment Report;
- preparation of Design Development Phase for obtainment of building permit with reports:
  - ◊ Fire Safety Report
  - ◊ Geomechanical Report;
  - ◊ Energy Efficiency Report;
  - ◊ Hazard Zone Report, if requested by the relevant authorities;
- preparation of Environmental Impact Assessment Study, if requested by the relevant authorities;
- preparation of Construction Documentation for construction purposes and approval of Fire Police;
- preparation of Detailed Fire Safety Design;
- cooperation with relevant authorities for the purpose of obtainment of conditions and approvals of design documentation.

Appointed as the person in charge of these projects is Katarina Komarek, Master of Science in Architectural Engineering, a proven professional with years of experience in design and management of complex projects in the field of industry and public buildings. After the introductory meeting with the Client, the available documentation was taken over at the end of October and the commencement of project implementation immediately ensued. The team of EP Industrija visited the site in the beginning of November and surveyed the existing condition of the buildings in Ljubovija. Archive documentation was taken over from the Client, whereas the requirements of Design Brief are expected to arrive soon, as well as the input data for process design solution. Geodetic survey of Alantic Stark complex in Belgrade is in progress.

JSC INDUSTRIJA – initiated cooperation with a giant in the field of electrical equipment for automotive industry

EXECUTION OF THE CENTRAL COOLING SYSTEM FOR JOHNSON ELECTRIC

Signing of the contract for preparation of design documentation for execution of the central cooling system for cooling of process water within the existing factory plant in Johnson Electric complex, marked the beginning of the cooperation with this giant in the field of electric and electronic equipment for motor vehicles.

Johnson Electric company has been successfully operating in Nis and has now decided to upgrade their business by expanding the production capacities of Johnson Electric factory with the third phase of the project. As a part of this expansion, company Energoprojekt Industrija has been awarded the design of centralized cooling system for process water cooling and we hope this is only a commencement of a successful cooperation with this company.

Considering the significance and complexity of the project, appointed in charge of the project is Tanja Djordjevic, Master of Science in Mechanical Engineering, who has so far easily completed the most complex of tasks in the field of design of mechanical installations, including design and management of the projects on the construction of boiler and power plant within the factory in Umka, fluid piping design, including Mining and Smelting Combine Bor, landfill in Vinca, Henkel and many others both in home country and aboard.

JSC HIDROINZENJERING – successful completion of one more project in Algeria

COMPLETED DETAILED DESIGN OF SIDI NACEUR DAM IN EL BAYADH WILAYAT IN ALGERIA

JSC Energoprojekt Hidroinzenjering successfully completed contract: Study of Detailed Design of Sidi Naceur Dam in El Bayadh Wilayat in Algeria. The subject of the contract is preparation of Detailed Design with tender documentation for construction of Sidi Naceur Dam in El Bayadh Wilayat. The Client is the Ministry of Water Resources, National Agency for Dams and Transfers (ANBT), a client that Energoprojekt Hidroinzenjering has a long-standing cooperation with on business activities in the field of water management. All contract phases have been realised in compliance with strict conditions which the Client, National Agency for Dams and Transfers (ANBT), defined in the contract.

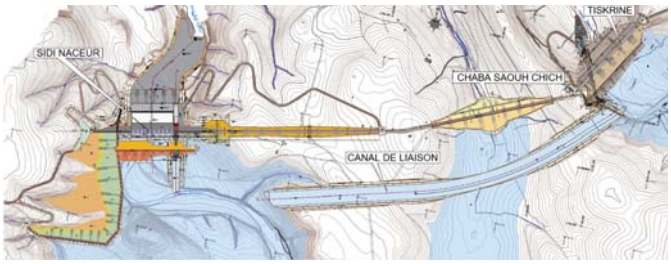


Figure No. 1. Layout of three dams: main dam Sidi Naceur and additional dams Shaba Sauh Shish and Tiskrin

Sidi Naceur reservoir is a multi-purpose reservoir which is to ensure potable water supply for municipalities of Brida and Haj El Mechri (Wilayat Laghouat), as well as irrigation of the plots in Wilayat Laghouat and El Bayadh, since agriculture is the predominant occupation of the inhabitants of this part of Algeria.

The integral Sidi Naceur reservoir in Sidi Naceur system is formed through construction of dams with three dam site sections (main Sidi Naceur dam of roller-compacted concrete, as well as additional embankment dams Shaba Sauh Shish and Tiskrin), while the reservoirs formed by these dams are interconnected with a channel (Figure No. 1).

Main dam on Sidi Naceur River and additional dams Shaba Sauh Shish and Tiskrin, with the crest on level 1,187.00 masl, will form an integral reservoir with a total volume of 36.16 million m^3 on the normal pool level of 1,180 masl. Bearing in mind that the primary goal of Sidi Naceur reservoir is provision of water for water supply and irrigation, water intake is designed on the section of the main dam Sidi Naceur. Apart from that, water intake is enabled for users in the section of additional dam Tiskrin.

Main discharge facility of Sidi Naceur system is located in the central part of main dam Sidi Naceur and consists of the spillway of a practical section ("USBR with vertical upstream face"), with stepped spillway and stilling basin (Figure No. 2). Dam spillway is centrally positioned, with ten 13.0 m wide spillway bays and crest on level 1,180 masl. The width of bridge pillars between spillway bays is 2.0 m, so the total width of the spillway is 148 m. Stepped chute is connected to the downstream side of the spillway. Stilling basin ("USBR type II") is provided for stilling of spill water. At the end of the stilling basin is toothed bumper wall and further downstream is coarse rip-rap.

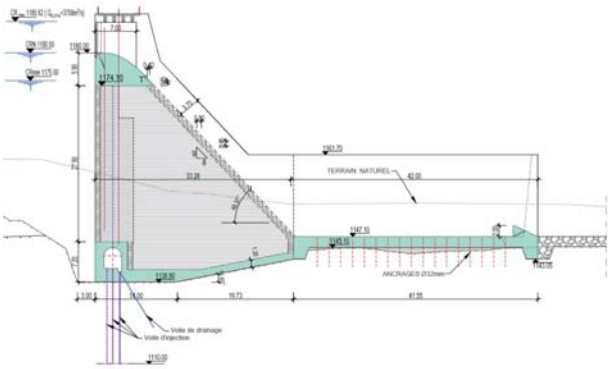


Figure No. 2 – Cross-section of spillway, chute and stilling basin

In accordance with defined phases of Sidi Naceur contract implementation, apart from the full service on preparation of design documentation successfully realised in the previous period, the accent falls on the part of the task related to hydraulic model testing for the purpose of checking whether the designed technical solution ensures safe water discharge at full flow range.

Hydraulic model testing has been carried out in the hydraulic laboratory of the Institute of Hydraulic and Environmental Engineering of the Faculty of Civil Engineering, University of Belgrade. Testing of the main discharge facility of Sidi Naceur dam is carried out on the physical model with length ratio of 1:33, with adherence of Froude's Law of Similitude. One section (by the length of the flow) is modelled on a scale model (Figure No. 3).

Hydraulic model testing of the adopted technical solution of the main discharge facility of Sidi Naceur dam showed that such solution, with suitable maintenance, enables safe water discharge at a considered flow range. Within the tests conducted on a scale model, it has been established that the capacity of the spillway is satisfactory and that the designed height of divide walls of chute is sufficient to receive the flow of air-water mixture. The tests showed that the flow in the stilling basin is stable and height of divide walls of the spillway, for low water level specified in the design is sufficient to withstand a surge without the risk of overflowing of the walls of stilling basin. Measured speeds at the bottom downstream from the stilling basin show that, at calculated flow rate of Q0,01% = 3.708 m^3/s the intensities that could move and damage the designed stone protection do not occur.

Based on all performed model tests and calculations, at this phase of preparation of Detailed Design of Sidi Naceur dam, it has been concluded that the proposed technical solution of connecting channel and spillway on main Sidi Naceur dam enables safe discharge of flood water T=10 000 and T=1000 years.

Figure No. 3 – Model testing on the physical model of main discharge facility of Sidi Naceur dam, hydraulic laboratory of the Institute of Hydraulic and Environmental Engineering of the Faculty of Civil Engineering, University of Belgrade

In accordance with the conditions of contract and precisely defined phases of implementation, designer prepared environmental impact assessment study for adopted technical solution of Sidi Naceur system, as well as the study of the risk on the downstream section in case of dam failure. Apart from this, a cost-effectiveness analysis has been carried out, as well as the study of anti-erosion works in the catchment area.

Since all the phases of implementation of Detailed Design have been successfully completed, we expect that the investor, as the Client will as soon as possible issue an international tender for construction and supervision of the works on realisation of Sidi Naceur system.

JSC HIDROINZENJERING – implementation of projects in Uganda

WORKS ON CONSTRUCTION OF HPP KARUMA IN UGANDA ARE NEARING COMPLETION

Implementation of the project of hydropower plant Karuma with capacity of 600 MW, in Uganda, on the White Nile River, at a distance of approximately 270 km from the capital of Uganda, Kampala is in progress. This project is being realised by the government of the Republic of Uganda. Uganda Electricity Generation Company Limited – UEGCL, a state-owned public utility for electric power generation was appointed as the Project Implementation Agency on behalf of the government. Realisation of the investment in the value of 1.7 billion USD is secured from the loan of the Export-Import Bank of China (CEXIM) in the amount of 85%, whereas the remaining 15% is financed by the government of Uganda. The project is being implemented as per EPC contract by Chinese General Contractor - Sinohydro, under supervision of the Owner's Engineer - AFRY Switzerland and Energoprojekt Hidroinzenjering.

Figure No. 1 Aerial view of the above ground structures of HPP Karuma under construction, water intake structures (on the left) and spillway (in the middle)

HPP Karuma is being built in the northern Uganda on the White Nile River, just upstream from the protected area of the Murchison Falls and downstream from the Lake Victoria, which with volume of 4,000 billion cubic meters represents the second largest natural potable water tank in the world, the first being Lake Baikal. Bearing in mind the vicinity of the largest national park in Uganda, as well as the presence of a large water reservoir of Lake Victoria upstream from the dam site section, small part of the project consists of above ground structures. They include 314 m long and 17 m high concrete gravity dam, with nine 10 m wide spillway bays equipped with gates, plus one log boom as well as a separate water intake for the power plant on the left bank with 6 intake structures. Apart from this, desilting gate is also provided, as well as the gate for release of guaranteed environmental discharge and fish ladder. Aerial view of the zone of construction of water intake and spillway is shown in Figure No. 1.

Underground structures include a complex water conveyance system, cavern with machine building which will accommodate 6 Francis turbines, one main transformer and cavern with gas-insulated switchgear, two separate downstream surge tanks and two tailrace tunnels. Apart from these major structures, design also provides for main access tunnel, cable and ventilation shafts, drainage galleries and 10 construction galleries. General layout of the underground structures is shown in Figure No. 2.

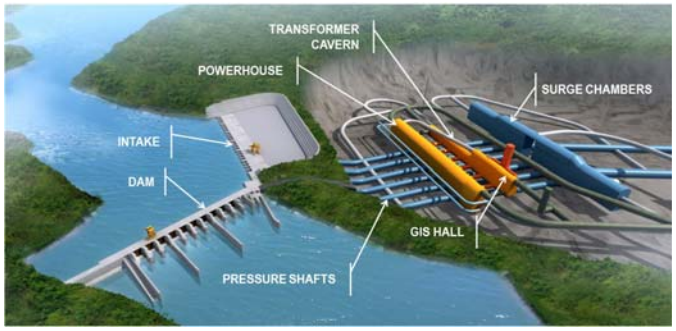


Figure No. 2. 3D appearance of the basic components of the project

The most important underground structures which should be mentioned are cavern with mechanical building with length of 200 m, width of 20 m and height of 53 m, cavern with transformer 160x15x33 m and two surge tanks with total length of 340 m and height of 53 m. In a combination with two tailrace tunnels with length of 8.6 km each and diameter of 12.9 m, this is a giant complex of underground structures. Very favourable geological conditions, primarily the presence of old metamorphic primary rocks with small-scale tectonic deformations and stresses served well for the execution of the works on excavation.

Figure No. 3. Surge chamber

HPP Karum will use a gross head of 70.0 m and designed flow of 1,098 cubic meters per second for average annual generation of 4,373 GW of electric energy and, once commissioned, will be the largest power plant in the country. Extremely high annual production ranks this power plant among the global leaders in terms of the annual operation of more than 7,000 hours, which is typical for the annual operation of the thermal power plants. Continuous flow through the White Nile River throughout the year in the range from 1,200 to 1,600 cubic meters per second, which is a consequence of the water outflow from the second largest lake in the world, allows for extremely high annual production and economic efficiency of the hydropower plant.

Figure No. 4. Switchgear

Figure No. 5. Underground mechanical building

Construction of the project commenced in August 2013. Together with the personnel of JSC Hidroinzenjering, AFRY Switzerland Ltd. took over the role of Owner's Engineer on May 5th 2019. for the remaining period of project implementation. After takeover of this position, insistence upon strict implementation of the work methods and their approval before commencement of construction, as well as the active control of the works on the site, led to the improvement in the quality of works.

After the latest negotiations held between the Client and the Contractor in the end of November 2020, a new deadline for completion of the works was defined – mid-June 2022. Since the majority of the works have been performed, what remains to be done is equipment testing and commissioning, as well as the repairs of already completed works on electromechanical equipment and structural works. It is expected that, with the engagement of the Engineer, the Chinese contractor Sinohydro will successfully complete the project within the specified period.

JSC ENTEL – implementation of projects in Oman

ACTIVITIES ON THE CAPITAL PROJECT OF CONSTRUCTION OF WATER SUPPLY SYSTEM IN THE ADMINISTRATIVE REGION OF AD DAKHILIYAH IN OMAN

The project of construction of water transport and distribution system in the administrative region of Ad Dakhiliyah represents one of the most important projects in the field of water supply in Oman. Entel is engaged in implementation of this capital project in the capacity of the consultant of the Client, Oman's national company Water and Waste Water Services Company - OWWSC. The main purpose of this project is to meet the water demands of the administrative region of Ad Dakhiliyah in the next two decades, i.e. by 2040. The estimated budget for project implementation is approx. USD 340 million.

Laith Al Tikrety, Entel's leading structural engineer engaged on the project, says that the most complex part of the project is construction of four steel tanks with capacities of 87,500 m3 each, as the integral parts of the system, with the total storage capacity of 390,000 m3. These tanks are the largest steel tanks for water storage built in Oman so far, and are also the second largest built in the countries of the Persian Gulf Region. The record is still held by "Mega tanks" for water storage in Qatar that found their place in the Guinness Book of Records. It is worth mentioning that Entel was also engaged in this project in the capacity of Project Manager.

Tanks built within the project of construction of water supply system in Ad Dakhiliyah Region have the diameter of 93.7 m and foundations reinforced with reinforced concrete ring. Tank shell consists of a welded steel sheath with the height of 13.5 m, made of carbon steel sheet of various quality and thickness. The most demanding structural part is the roof of the tank executed in the form of a self-supporting structure of aluminium truss with a span of 93.7m, without central supports, rising 19.6 m above the sheath of the tank. Thin aluminium sheets fully cover the spatial grid.

Figure 1 Water tanks within the newly built water supply system in Ad Dakhiliyah Regio

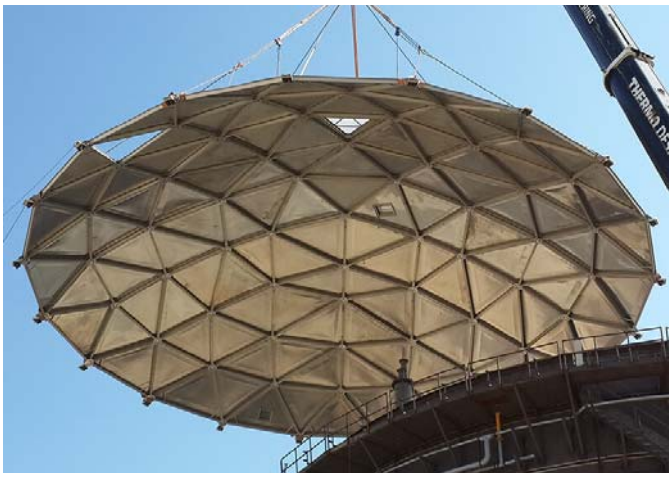


Figure 2 Performance of works on the tanks within the newly built water supply system

Figure 3 Execution of the works on the water supply system in Ad Dakhiliyah Region

Entel's expert team faced numerous challenges during implementation of the project, starting from the communication on the project, through coordination and integration of all the activities of the members of three different design teams from three different countries which had no previous work experience in Oman or any experience in terms of the working conditions and construction of this type of structure.

Since Entel had no previous experience in Oman with implementation of a water management projects of a similar scope, numerical analysis has been performed through implementation of a 3D finite element method (FEM) for all critical structural members to ensure that all the members are within the permissible stress limits.

All Entel's activities on the project are directed towards ensuring reliable and safe operation of the executed system. In subsequent project phases, the constriction will be completed, the system handed over and inspected, that is, its performance proved.

Through implementation of this capital project, Entel continues to build ever more impressive list of references in the field of water management, which, together with power generation, transmission and distribution constitutes the main pillar of Entel's activities on the Middle East.

JSC ENTEL – implementation of projects in Serbia

ENTEL PREPARES TECHNICAL DOCUMENTATION FOR THE PROJECT OF HEAT ENERGY SUPPLY OF BELGRADE FROM TPP NIKOLA TESLA A

The idea of district heating of Belgrade from TPP Nikola Tesla A dates back to the seventies of the previous century, whereas the project commenced as early as in 1979. with preparation of the first technical documentation. Even through a lot of time has passed since the first activities on the project, it is still ongoing, with major or minor interruptions.

A portion of the equipment for this project was supplied and a part of the preliminary works conducted in the period from 1993 until 1997, as well as a part of the works on equipment installation and then the works had to be suspended due to the economic crisis that befell the country in the period. However, the official decision to suspend the construction of the heating system of Belgrade from TPP Nikola Tesla A was never made.

The national strategy of economic development of Serbia until 2012 and Belgrade Energy Development Study of 2008 foresaw the completion of this project as the only alternative to the unacceptable level of dependence of Belgrade heating on the import of natural gas and fuel oil.

In accordance with above mentioned strategy, in the period from 2015 until 2018, a feasibility study was made as well as the schematic design of construction of district heat supply line for heat supply of Belgrade from TPP Nikola Tesla A.

Finally, by signing a contract between Public Utility Beogradska elektrane (Belgrade Power Plants) and Chinese company Power China in 2017, the conditions were created for implementation of this long-standing idea.

In March 2021, Entel and its consortium partners, JSC Energoprojekt Hidroinzenjering (EPHI) and Balkan Energy Team LLC (BET), signed a contract with the General Contractor – Power China company for rendering design services on the above contract. Contractual obligations include: preparation of Design Development Phase, Construction Documentation, As-Built Drawings, as well as design supervision of the construction. According to the construction contract, the total period for project implementation is two years.

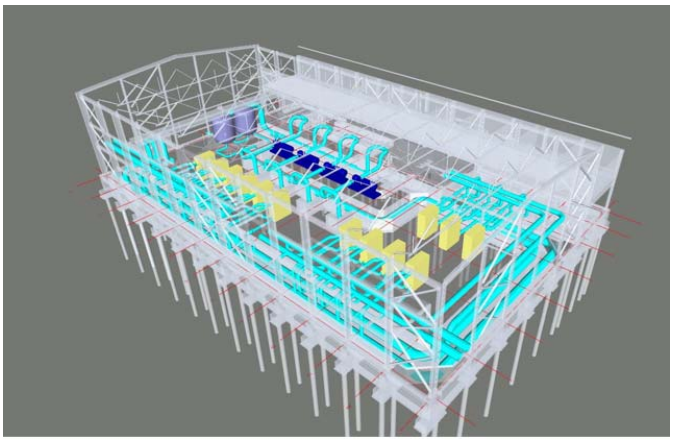
Within the design consortium, EPHI is in charge of structural design of the route of heat supply line, BET for recognition of mechanical design of heat supply line, while structural design of the structure on the route of the heat supply line (pumping and pumping and heat exchange station), including a part of the project in Thermal Power Station Novi Beograd and TPP Nikola Tesla A, recognition of the remaining technical documentation, as well as management of contractual obligations of the consortium constitute the obligations of Entel.

Main concept of this project is based on the fact that TPP Nikola Tesla A is located at approx. 30 km away from Belgrade and, using the lignite from Kolubara basin, it can reliably supply basic heat energy for heating of Belgrade. Peak heat energy demand would be satisfied from the existing city thermal power stations fuelled on natural gas.

Water is heated in TPP Nikola Tesla A using superheated steam deduced from intermediate-pressure and low-pressure turbines on blocks A3-A6. The plan is to use 600 MW out of the totally deduced 800 MW of heating power for heating of Belgrade and additional 200 MW of heating energy for heating of Obreanovac. As a consequence of heat generation in these blocks, the reduction of their electric power is inevitable, the value of which will be known once the final technical solution has been adopted.

Heat exchangers for transferring heat to the district heating system shall be housed within the mechanical room of TPP Nikola Tesla A , in the immediate vicinity of turbine blocks A3-A6. Nominal operation mode of this system is 140/75°C. Connection of basic source in TPP Nikola Tesla A with the consumers connected to Thermal Power Station Novi Beograd is to be realised through district heat supply line with diameter DN1000 and pumping stations (Sava, in the immediate vicinity of TPP Nikola Tesla A, Ostruznica, Boljevci and in Thermal Power Station Novi Beograd), whereas the heat exchange station for heating of Belgrade is located in Thermal Power Station Novi Beograd, and in Sava Station for heating of Obrenovac.

On obtainment of location conditions in June of this year, the conditions were created for commencement of work on implementation of Design Development Phase which started this year in September.



Development of equipment and pipeline layout in pumping and heat exchange station Novi Beograd

The plan is to implement the project through several phases (building permits) in order to ensure greater flexibility during construction. According to the plan for each building on the route, as well as for the buildings on the route of the heat supply line, separate building permits will be obtained.

Current activities on preparation of documentation are focused on pumping and heat exchange station located in Thermal Power Station Novi Beograd, since the first documents for this project were prepared by the Chinese contractor. As for the route of the heat supply line, topographic survey, as well as land expropriation, are in the final stage and the design of these parts of the project will be intensified soon.

However, the greatest challenge in this project will be the technical solution of heat exchange station in TPP Nikola Tesla A, where the equipment, piping and accompanying structure weighing approx.. 400 t a block, will be housed. This building has been actively operating since the early seventies of the previous century and care must be taken not to disturb in any way the reliable operation and supply of the electric power provided by the electric power plant. Apart from this, control and management of heat energy supply will pose a particular challenge, since it will be necessary to integrate the requirements of Thermal Power Station Novi Beograd with the operation of TPP Nikola Tesla A in order to realise the required heat production at all times, while making sure to optimise the losses in electric power generation.

It is worth mentioning that, among the documents prepared in the previous period, Entel also prepared in 2019 optimisation of the water heating method in TPP Nikola Tesla A which was adopted as the final solution for this project and disputed the solution considered in the Schematic Design which preceded contracting of this project with the Chinese contractor.

By implementing such a specific and unique project in the Republic of Serbia, Entel has a chance to refresh its portfolio in the field of heat energy supply made at the time when there were many more such projects and to continue to be a reliable partner in implementation of similar projects in the home country and in the region.

JSC INDUSTRIJA – ongoing projects

JUB – FACTORY OF PASTY PUTTIES, FAÇADE AND DECORATIVE MORTARS

Near the end of 2019, Energoprojekt Industrija (EPI) continued long-standing successful cooperation with JUB company, by signing the contract on the preparation and recognition of technical documentation and consultancy services in obtainment of permits and approvals for the project of the factory of pasty putties, façade mortars and decorative mortars.

JUB LLC from Simanovci continuously invests into improvement of its business operations and, in accordance with its business activities, has decided to increase the capacity for production of pasty putties (Nivelin dispersion putty and Jubolin putty) in relation to the existing production process, fully automate the process of their production and packaging and separate the production of putty and decorative mortar.

The aim of the project is optimisation of the production and packaging process with highest degree of automation with the intention of increasing the productivity of the processes and reduction of the number of persons involved in the process.

Based on the design documentation prepared by EP Industrija, all the necessary permits were obtained for execution of the successfully completed works and the conditions were met for EPI to prepare As-Built Drawings for technical acceptance and obtainment of occupancy permit for the above factory. Approval of Construction Documentation had been previously obtained from the Sector for Emergency Management and completion of the structural works on the building was reported. Design team of EPI visited the building and preparation of As-Built Drawings is currently underway.

JSC INDUSTRIJA – ongoing projects

HENKEL – RELOCATION OF INDUSTRIAL BURNER

In the beginning of the year, Energoprojekt Industrija successfully signed contract with one of the most important companies in the field of household chemicals, Henkel, for preparation of technical documentation for expansion of the capacities of the buildings: a factory for production of toilet flush cleaner balls with packaging and raw material storage and a factory for production of machine wash detergents. For the purposes of expansion of the capacities of the buildings within the complex of Henkel factory in Krusevac, it is necessary to conduct specific preliminary works, which, among other things, include relocation of the existing burner. Industrial burner is a device which constitutes a separate structural unit of the factory of powder detergents.

For all of the above reasons, Energoprojekt Industrija, as a bidder that fulfilled all the technical criteria, was also engaged to prepare design documentation for relocation of industrial burner in the existing detergent factory.

Technical documentation will include necessary designs of the new natural gas route to the nearest point of connection to the existing gas piping of the complex which is to enable supply to the relocated burner on the new location and form an integral part of the internal gas supply system.

JSC HIDROINZENJERING – study of water supply of Bar Municipality

THE FUTURE OF WATER SUPPLY OF BAR MUNICIPALITY IN MONTENEGRO

The study of water supply of Bar Municipality prepared by Energoprojekt Hidroinzenjering JSC Beograd and E3 LLC Podgorica was aimed at representing a strategic framework of the prospective models of water supply system in the area of Bar Municipality through visualisation of the existing condition, as well as potentials, advantages and flaws in the proposed individual solutions from both technical and economic perspective for the purpose of assessment of prospective investments and finding long-term solution for water supply of the areas of economic significance for the development of municipality.

Apart from development of the existing water supply system, the accent in the Study fell on solving the water supply problem in the areas marked as areas of particular significance and interest and can be divided on three spatial and functional units:

- Coastal areas of Bar (existing water supply system expanded to cadastral municipalities Kunje, Dobre vode and Pecurice)
- Shore of Lake Skadar – characterised as an up-and-coming area in terms of tourism potential
- Rural area

In the process of preparation of the study, developers thoroughly acquainted themselves with the problems of the above area, as well as with the aspects of prospective development of Bar Municipality which should be accompanied by suitable development of water supply infrastructure, possibilities, limitations, as well as the flaws of the existing water supply system, existing and potential water sources and spatial and altitude distribution of settlements which could be unified in subsystems. As a result of this, technical solutions were proposed as the guidelines for further design phases.

Central area of Bar Municipality – area covered with the existing water supply system

Key identified flaws in the system: deterioration of the system, physical losses in the system, reduced capacity of tank space, unfavourable spatial arrangement of tanks in the system.

During the course of preparation of the study, by gathering data, visiting the locations, communicating with the technical team of ViK Bar, the conclusions were made and provided in the form of proposals for expansion and reconstruction of the existing water supply system of the central area of Bar Municipality: use of the potentials of the existing tanks, construction of new tanks: Kurilo 1 and Kurilo 2, connecting of tanks Kurilo 1 and Zaljevo 1; construction of transit water supply pipeline for Stari Bar-Kurilo-Marovici-Sustas tanks; construction of new pipeline that would connect water intake structure Kajnak and tank Kurilo 1, as a replacement for the existing deteriorated pipeline; construction of distributive network in Zaljevo – Mirovica settlement; Construction of tank Tunel 2; construction of tank Tunel 3; Use of the existing branch Zaljevo for filling of tank Zaljevo 1 and Zaljevo 2.

Proposed construction of additional tanks would solve the issue of water scarcity, i.e. enable hourly balancing of consumption, which would eliminate the need to ensure maximum hourly consumption by pumping from the water sources and it would enable cancellation of individual hydrophore stations (only the ones required for smaller groups of buildings at higher elevations would remain). Construction of new tanks would enable more favourable division of water supply system in water supply zones and reduction of pressure in distributive network, which will lead to the reduction of losses in the system.

The study examines the possibility of water supply from Podgorska vrela water source which is currently not being used for water supply of Bar and proposes technical solution that includes the route, diameter and facilities that would distribute water in the future to the central area of Bar.

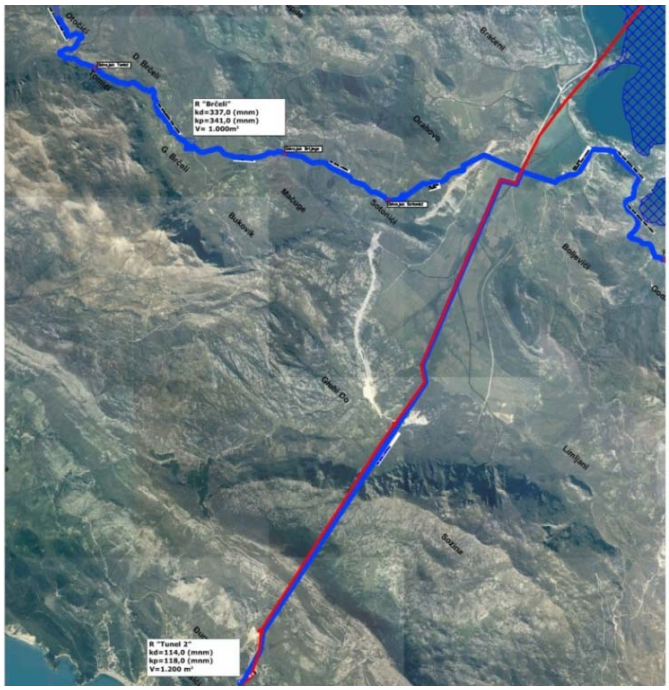


Figure No. 2: Proposed pipeline route from Podgorska vrela to the city centre of Bar Municipality

Coastal area of Bar – Cadastral Municipalities Dobre Vode, Pecurice, Kunje

Key identified flaw: there is no water supply system.

Coastal area of Bar – In terms of water supply, Cadastral Municipalities Dobre Vode, Pecurice, Kunje are characterized by the absence of natural water sources and, on the other hand, the area has exceptional potential for the development of tourism.

The analysis of water balance for the above area showed that the planned water quantity which could be provided from the regional system at the existing tie-in points of Dubrava and Utjeha, as well as at planned Pecurice and Belvedere towards the belonging tanks, fulfils the water requirements in the summer mode of consumption.

Proposed solution to the problem of water supply of this area is based on the following activities: activation of the existing tie-ins to the southern branch of the regional system, Dubrava and Utjeha; construction of new tie-ins for Perucice and Belvedere; tanks for water supply zone I of Dobre Vode, Busat and Belvedere, tanks for a higher zone of settlement Pecurice; main supply pipelines from each tie-in to the regional system to the belonging tank and water supply zone; distributive system in the settlement; further development of the system towards higher zones through construction of pumping stations and tanks for the higher zones.

Shore of Lake Skadar

The shore of Lake Skadar, from Virpazar to Ostros and village Ckla has been recognized as a zone of particular interest for the development of tourism economy. There are several settlements in this area without a permanent water supply solution of good quality.

Water supply of the shore of Lake Skadar is very demanding due to the reasons of existence of vast differences in altitudes, following regional road R15. Another unfavourable circumstance is high dispersion of settlements (great distance between a small number of houses). Villages stretch from the lake to the altitudes from 5 to 600 masl.

Figure No. 3. Proposed development of distributive system in the coastal area of Bar – Cadastral Municipalities Kunje, Pecurice and Dobre Vode

An exception to this is the water supply in Virpazar from Virpazar system – well system in Orahovo Polje, whereas village water supply systems operate in the settlements of Komarno and Boboviste.

An analysis of water balance was made for the above area, obtained based on the assessment of the number of inhabitants and tourists (in accordance with the current planning documentation), adopted standards of consumption, unevenness coefficient, loss assessment.

The study covered two potential water supply concepts:

- Establishment of centralised lake water supply system in the corridor of road R-15 from Virpazar to Cikla settlement;
- Separate water supply of individual or smaller groups of settlement by abstraction of water from the lake and its local purification for each settlement.

The area is characterised by non-existence of natural sources of potable water and therefore the possible water supply solutions would be Podgorska vrela water source (already in use for Budva and Cetinje system), Radusko oko – potential water source which is to be tested, a branch of the regional system of Montenegrin coastline and, on the other side, untested springs on the shoreline of Lake Skadar, abstraction and purification of lake water.

As a proposed solution of water supply of this area, after prepared technical and economic analysis, the following has been conceptualised based on the water supply from the regional system (maximum daily requirements, whereas hourly unevenness would be covered by belonging tanks for each area): connection to the regional system; construction of major pipeline from the Southern branch of the regional pipeline to settlements Ckla and Arbnez; construction of tanks Sestani and Gornja Briska on the major pipeline; construction of pumping stations on the major pipeline: Lake Skadar, Seoce and Livari; construction of main supply pipelines from the major pipeline to the settlements; construction of water supply facilities and distribution system in each settlement.

Rural settlements

The solution proposed in this study includes settlements of Skadar area which in their existing condition do not have resolved water supply issue, as well as improvement of water supply of the settlements with local water supply systems, their connection to centralised system (Godinje, Seoce, Krnjice, Karanikici, Dedici, Gruza, Lukici, Dracevica, Djuravci, Donji Murici, Besa, Livari, Gornja Briska, Donja Briska, Tejane, Kostanjica, Martici, Boboviste, Mali Ostros, Veliki Ostros, Arbnez and Ckla).

Considering the possibility of water supply of Lake Skadar area from Podgorska vrela, it was concluded that the settlements in the area from Otovcici to Sotonici could be fed from Podgorska vrela water source.

Virpazar has its own water supply system. Since the existing system can withstand the increase in consumption, which inevitably accompanies the planned development of tourism in this part of Bar Municipality, of water supply from Orahovo polje of Virpazar subsystem, the possibility of water supply of Limljani settlement through construction of pipeline with length of approximately 7 km was also considered.

Proposed individual water supply of the shoreline with domestic water from Lake Skadar, either directly or through vertical boreholes, provides for water abstraction for individual settlements along the shore of the lake or from karst springs (springs below water surfaces) in the lake and then its pumping with well pumps to the proposed tanks wherefrom it would be gravity discharged to the settlements

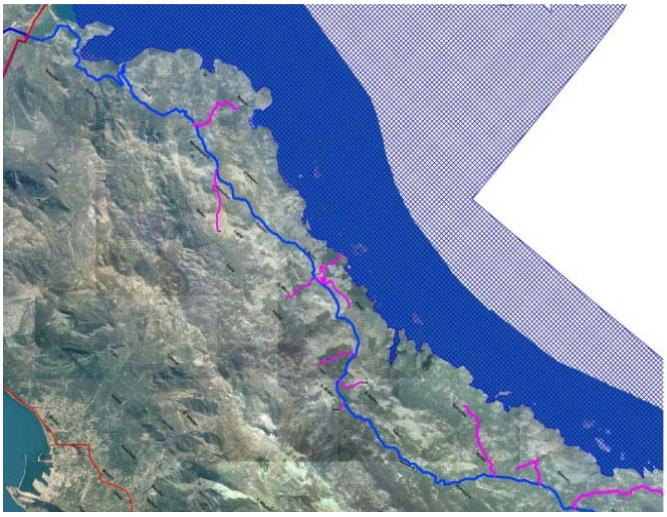


Figure No. 4. Proposed route of the main pipeline of centralised water supply system Lake Skadar

Since this area is characterised by a high level of dispersion and extreme variations of altitude, this water supply method is also proposed for the areas of Lake Skadar which could be connected to the centralised system in the final phase of its construction. Until that time, they would exist as independent systems. The basis for development of this type of water supply system is the example of water supply of settlement Boboviste. Although the water is not potable, the inhabitants of the settlement solved their problems using it.

JSC HIDROINZENJERING – project of HPP Komarnica

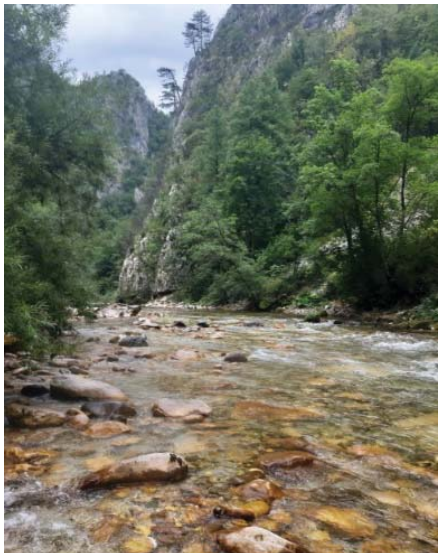
STRATEGIC BUILDING IN THE REGION IN THE LIGHT OF ENERGY AND ENVIRONMENTAL CHALLENGES

Hydropower Plant Komarnica has been the subject of discussion for decades. The structure which is constantly being scrutinized by both the professionals and the inhabitants, always causing conflicting reactions of all (non)interested parties. The idea of construction of this energy facility on the river of the same name originally occurred as early as in the seventies of the last century. Komarnica River is the main tributary of Piva River which has considerable hydropower potential partially used in construction of HPP Piva in 1976.

In several studies and previous works on provision of suitable documents on the above area, the location of the dam was defined in Lonci section with altitude of 818 masl which was later corrected to 816 masl, approx. 45 km upsteam from HPP Piva.

HPP Komarnica is provided for in suitable planning documents, primarily in the Energy Development Strategy to 2030 (2014) and Water Management Plan of the Republic of Montenegro (2001). These documents represent a legal basis for preparation of Schematic Design and Feasibility Study for construction of this structure. The solution for construction of the structure proposed in the previous studies (eighties of the previous century) was condemned by the local population and various environmental associations due to devastation of the natural environment and sinking of the famous "pearl" of Montenegro, Nevidio Canyon. The environmental activists hold the opinion that the artificial reservoir would severely jeopardize the unique flora and fauna on this insufficiently explored area which is a home of some endemic species. On the one side, there is the significant hydropower potential and the possibility of construction of energetically strategic facility, whereas on the other side, there is the issue of jeopardizing environmentally attractive and unique area in this part of Europe.

The Client, design team, consultants and relevant authorities faced a great challenge the modern age: how to find a compromise of energetics and ecology? How to provide the benefits that this facility could bring to Montenegro and the region and simultaneously preserve the indisputably unique natural beauty and riches of the considered locality? An answer to these questions was given through preparation of technical documentation of Schematic Design and Feasibility Study for construction of HPP Komarnica with the Study of the Environmental Impact of HPP Komarnica and joint effort, cooperation with the Client and knowledge and experience of the team of designers and professional associates of EP Hidoinzenjering in consortium with the Water Management Institute Jaroslav Cerni. Schematic Design was prepared in 2 phases: in the first phase, optimisation analyses were carried out, based on all acquired knowledge and available technical documentation defining the technical parameters of the buildings, primarily the type of dam and layout of the facility, normal pool level, installed flow rate and number of generators. In the second phase, the adopted optimum technical solution was developed in accordance with design brief and current legal regulations. Taking into account the need for protection of natural beauties and maximum preservation of the existing settlements of local inhabitants, the Client and design team worked on this technical documentation taking as their starting point the condition that the pool level of Komarnica reservoir cannot flood Nevidio canyon and Savnik settlement. Observing this limitation, design team defined technical solution of the facility that would jeopardize neither the essential natural values of regional park Dragisnjica and Komarnica nor Nevidio canyon. The most important habitats of the regional park are located above the altitude of 811 masl, whereas the use of Nevidio canyon will not be changed. Adopted technical solution implies construction of a double-curvature concrete arch dam with variable thickness both vertically and horizontally, with front spillway and tailrace tunnel and run-of-the-river power plant with above ground machine building with rated capacity of 130+8 m3/s. Adopted solution provides for two Francis type water turbines with rated flow of 65 m3/s and one smaller water turbine with rated flow of 8 m3/s. Rated power of the power plant is 2×81+9.9 MW. Adopted normal pool level of the reservoir is 811 masl, volume of the reservoir 137.4 million m3, dam crest level 814 masl, dam height 171 m, length in dam crest 211.4 m, width 5 m. Within extensive energy analyses that included the characteristics of energy systems not only of Montenegro, but of the region, as well and the current situation on the electric power market, design team of EP Hidroinzenjering defined the place and role of HPP Komarnica both in the system of Electric Power Industry of Serbia and of Montenegro and its potentials on the market. It is provided that HPP Komarnica be engaged in covering the demands in terms of energy and power in analysed systems. Considering the size of useful volume of the reservoir, power plant will follow the seasonal changes in consumption and peak load of the system. High position of HPP Komarnica in the catchment area gives it significance in covering the demands in the cold reserve of the system when the effects on the downstream facilities are realised. Average annual production of the hydropower plant would be 213 GWh. With such performance, HPP Komarnica is without a doubt a strategic facility of common interest. In addition to this, introduction of renewable resources which are the choice of all electric power industries in the region, will emphasize the issue of reserve capacities and the need for their use.



Design team with support and presence of the Client's work group, observed the above area several times both from the land and from the river, in a boat. At the time of low water level in August 2019, a team of designers and associates engaged in preparation of Environmental Report walked through a large part of the canyon wading through water with the intention of locating local springs and sampling water to determine its quality. At that time, all geologically and hydrogeo-

logically interesting localities were identified and documented. This way, the design team directly familiarized itself with the beauty and wilderness of the canyon and inaccessible, barely passable woods. With such unique experience and perspective of the canyon, high level of responsibly and awareness of all the challenges, our designers with associates exerted maximum effort to find a solution that would offer quality use of such hydropower potential with maximum preservation of the natural wealth of this intact area. Also, productive conversations with the representatives of Savnik Municipality took place for the purpose of visualisation of actual socio-demographic conditions, active measures of environmental protection and expectations of the local population. The quality of design documentation that properly and argumentatively responds to the challenges of social and environmental issues, is to a large extent the result of immediate, active and constructive cooperation of design team of EP and Client's representative from EPCG.

Optimum technical solution of HPP Komarnica was coordinated with all necessary conditions of relevant authorities (water management, environmental, cultural and historical, infrastructural, connection to the system etc.), which are contained in or constitute an integral part of urban and technical conditions.

It is also important to note that the Study of regional strategy of sustainable hydropower in the western Balkans (WBIF), supported by the European Commission, ranked HPP Komarnica along the environmentally acceptable greenfield projects.

The area provided for formation of reservoir is unpopulated, there are no industrial capacities, roads, commercial buildings or households that would be jeopardized. On the contrary, through implementation of this project, extremely underdeveloped Savnik Municipality would get a chance to experience an accelerated growth through development of tertiary activities, especially in the field of tourism. In addition to this, prospective lake can offer conditions for water sports and recreation for the population of its wider surroundings. There is a potential for the water reservoir to have an important role in irrigation of the surrounding area. From all of the above, it is clear that this project requires professional expertise and visualisation of all its aspects, not only the technical ones.

Construction of HPP Komarnica will be the first big project of this type after several decades in these areas. A big challenge, a big stake and even bigger responsibility. Without a doubt, this is one of the most attractive endeavours in the region which is yet to be heard of and we believe it will be heard of in a good light.

JSC HIDROINZENJERING – Djedra dam project in Algeria

CONSTRUCTION OF DEMANDING CONCRETE STRUCTURES UNDER UNFAVOURABLE GEOLOGICAL CONDITIONS

Djedra Dam is located in north-eastern Algeria, in the vicinity of the city of Souk Ahras and the border with Tunisia, at the confluence of rivers Hammam and Akiba. Rockfill dam with upstream concrete screen, with height of approx. 65m and length of approx. 450m at dam crest is executed as per the solutions from the Detailed Design by company Zarubezhvodstroy (Russia) and Construction Documentation of EP Hidroinzenjering, which, since the end of 2012, has been actively monitoring construction of this dam, carrying out continuous modifications of the initial design as a result of unfavourable geological structure, inconsistencies of the received documentation – structural and technical part thereof with geological documents, complex structures and technological and administrative limitations of our Algerian partners in implementation of this project.

Geological structure of the terrain, in the narrow area of investigation of the site of prospective dam, is characterized by a complex composition in terms of structure and texture. The youngest geological formations in the locality of dam site section of Djedra, are of Eocenic origin. The oldest geological formation consists of Triassic formations with gypsum as the predominant formation.

Triassic formations had an active role in creation of a geologically complex structure of the terrain and they contributed to creation of steep relief with atypical topography with subsequent raising of already formed terrain in the conditions when at great depths, anhydrites come in contact with water and turn to gypsum. In this process, the volume of this formation increases, sometimes by as much as 30%, older geological formations expand, rise and reach geologically younger formations which are hypsometerically higher. This was also the last phase of formation of the geological structure of the terrain.

Frequent changes in lithological members with unclear position of spreading of geological structures in all directions, under conditions of diapir, occur as a rule rather than exception in this locality.

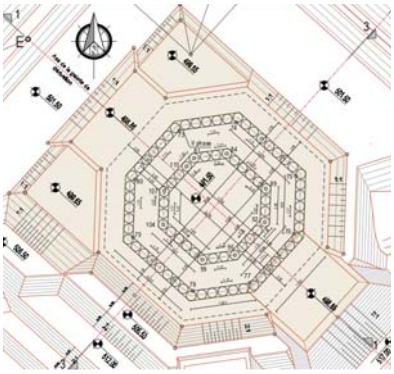
Apart from very complex geological structure of the terrain in the zone of diversion structures, contemporary geodynamic processes are developed in the form of two active landslides. Design bureau prepared for preparation of technical solutions of prospective Djedra dam, taking into account similar experiences well known from Mosul dam (continuous eluviation of gypsum in the conditions of use of the facility), but uncoordinated structural and technical documentation from Detailed Design phase with geological structure of the terrain brought the designer of the project back to the beginning. Designer was forced to offer complex technical solutions of terrain remediation under conditions of construction of the project, which have not been seen in Energoprojekt for decades.

When it comes to structures, the structures within the diversion posed a serious problem:

1. Shaft spillway with water intake tower. Design provides for flood water discharge from the reservoir of Djedra dam through shaft spillway. Apart from its complex geometry, this structure had the following problems as well:

- Unlike the standard engineering practice where the tendency to bury such structures at least in one third of their height, this shaft spillway is fully excavated, which together with defined high-risk seismic zone offers very dynamic influences transferred to the ground.
- Nothing less of a problem is joining 2 fully different structures, a massive shaft spillway and water intake tower into a single structure with shared wall and foundations. This atypical merger created a unique structure which lost axial symmetry, its centre of gravity and geometric centre shifted from the axis of the shaft and torsion was introduced as a significant load which would not exist if the structures were separated.
- The problem of foundations of this high structure of 30,000 m3 of concrete added up to the all of the previously mentioned

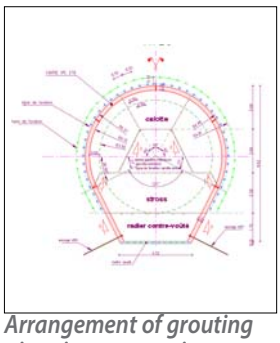
3D models of shaft spillway with water intake tower



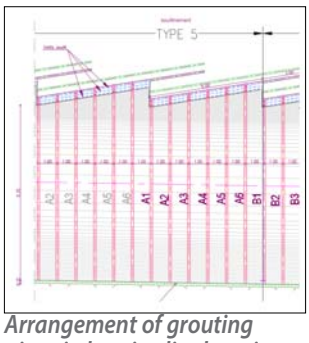
Pile layout

Shaft spillway – piling

Shaft spillway with water intake tower (May 2021)



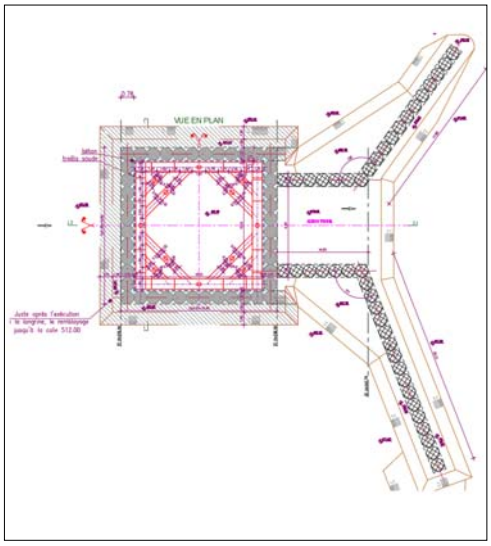
Arrangement of grouting pipes in cross section



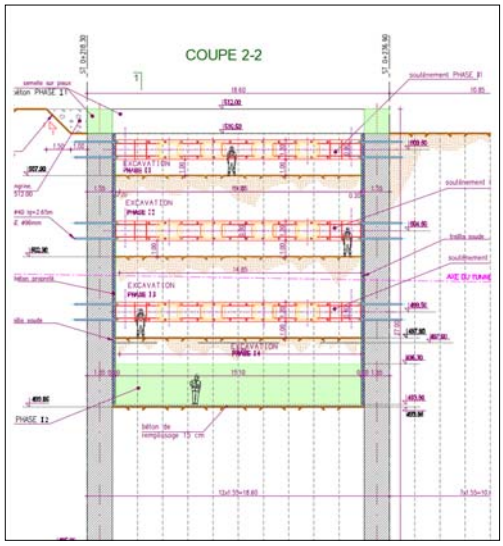
Arrangement of grouting pipes in longitudinal section

Execution of pipe roofing

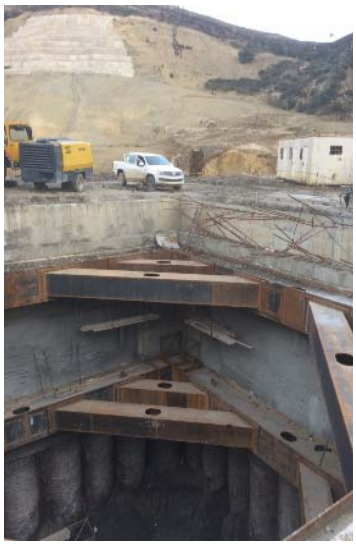
Execution of tunnel cladding



Arrangement of piles of the outlet structure – layout



Phases of execution of excavation – cross section



Phase of execution of excavation

Outlet structure with excavation for the stilling basin

Cutting of the piles of the outlet structure

ones – marl of inadequate load-bearing capacity for this type of structure. The stability of the structure, permissible pressures in the ground and withstanding the impacts of the entire structure were secured with foundations, as well as replacement of the soil with lean concrete, while the piles are arranged in 2 concentric rings.

2. Diversion tunnel. Excavation for the structure which has a role to divert the river during construction and ensure dry conditions for construction of the dam, while during the period of its use ensures discharge of flood water from shaft spillway through stilling basin to the river bed downstream from the dam, posed a great challenge in terms of shoring system which would enable safe operation. The solution to this problem was found in the excavation with pipe roofing system.

3. Outlet structure of diversion tunnel. The conditions in the downstream tunnel were additionally aggravated at the point of outlet structure. Apart from bad properties of the shale which forms the base of the slope, there were also 2 registered landslides with depth down to 10m, which even before commencement of the works, in the natural condition of the terrain, included almost the entire slope to the riverbed. The situation in the terrain was additionally aggravated by the contractor who formed an embankment and constructed a building at the top of the landslide.

Considering the geological conditions of the terrain, the possibility of execution of the excavation from the surface of the natural terrain was discarded in its entirety. Instead, after removal of surface layers of the terrain, we provided for vertical excavation with strong shoring – by forming walls of piles that formed a box with 15m sides and enabled descent to the required level – the level of the bottom of the tunnel. Channel constructed on piles was connected to this box, and then the stilling basin laying at the toe of the landslide.

Unstable and moving body of the landslide was removed within the preliminary works and series of piles were formed, which with protection of the slopes with gunite and anchors enabled for a part of the excavation be carried out from the surface of the terrain forming an area for vertical excavation as per the adopted solution, with steel shoring of piles which were sequentially placed as the excavation progressed and dismantled as the internal concrete structure progressed taking over the load from the shoring and giving the structure its final outline.

In order to enable safe excavation of the spillway in very bad material, wing walls constructed on piles were formed. During these 7 years of active construction, most of the time was dedicated to the stabilization of the terrain and enabling execution of the works. Since the river was officially diverted approximately 10 months ago, that allowed for quicker advancement of works and opening of a wider front of the works and the accent was slowly shifted to realisation of the dam, as well as to anti-filtration measures to reduce the speed of gypsum dissolution which could result in collapse of the ground in the zone of the dam and jeopardize of the stability of the dam and watertightness of the reservoir.

Taking into account the progress of works, as well as the potential problems with watertightness of the terrain due to unfavourable geological structure (primarily the presence of gypsum in the foundations of the dam), additional attention will be paid to the program of observation, both through the use of modern auscultation equipment and through forming of geodetic systems with regular observation during construction and later during the use of the structure.

JSC ENTEL – the progress of works on the design of energy-from-waste plant in Vinca

ENTEL PROVIDES THE SERVICE OF SUPERVISION OF THE CONSTRUCTION OF ENERGY-FROM-WASTE TPP-TPS IN VINCA

Starting from September 2019, Entel is providing the service of supervision of the construction of energy-from waste TPP-TPS, as well as of a cogeneration plant for obtainment of electric and thermal energy from biogas (BEP Biogas Engine Plant) in Vinca.

The activities of supervision are conducted in accordance with the Law on Planning and Construction, taking special care to ensure that construction is carried out in accordance with building permit and design documentation, prepared for EfW plant by Entel, with adherence to the deadlines and high requirements for the quality of work, delivered material and equipment and control of material and equipment certification documents.

EfW plant includes: boiler plant with incinerator and selective non-catalytic reduction system for reduction of nitrogen oxide emission, turbo-generator plant for electric power generation, plant for transmission of heat energy to district heating system, dry flue gas cleaning system, systems for treatment and solidification of hard residue left after combustion, as well as all other accompanying systems and facilities. Nominal electric power of the thermal power plant – thermal power station in condensation mode is 33 MW, while in combined mode, thermal power plant can generate 56 MW of heat energy. Construction zone covers the area of approx. 5 ha.

According to the current programme, EfW plant should receive first deliveries of municipal waste in June 2022 when the test operation would commence.

The contractor is French company CNIM, which, apart from engaging foreign subcontractors, also engages a significant number of companies from Serbia. At one point the number of engaged subcontractors was more than 50.

More than 300,000 m3 of soil has been excavated for the purpose of construction.

In a little over two years, the conducted activities brought structural works on the waste bunker structure, chemical water preparation, administrative building, electrical building and turbine building to their final phase, whereas the steel structure of the boiler room, baggy flue gas filer with accompanying systems and air condenser for condensate cooling are already completed.

It should be noted that more than 20,000 m3 of concrete have been placed and 4,000 tons of reinforcement have been installed so far. In addition to this, more than 800 piles with diameter of 600 mm and length of 12.5-24 m have been executed. The activities on concreting of mat foundations of waste bunker and boiler room are particularly important, considering the quantity of concrete placed – more than 1,400 m3 for each of the above mentioned parts of the plant. Over 2,100 tons of steel have been used for construction of the load-bearing steel structure of the boiler room with height of more than 50 m.

The thickness of mat foundation of the boiler room was 2-3 m and during the first phase of construction, concrete was cooled with a pipe system installed especially for that purpose.

Good preparation and coordination by the contractor and the Engineer enabled carrying out of all activities in accordance with high quality standards set on the construction site.

Since the buildings are structurally in the final phase, the priority at the moment are electrical and mechanical works. Hydro test of the boiler was successfully completed in the last weeks of October and the testing consumed more than 250 m3 of water.

Due to shortened deadlines and synchronization of structural works and erection, turbine and generator plant (total weight of approx. 100 tons) is placed on a support structure with truck-mounted crane with capacity of 1,200 tons.

It is noteworthy that approx. 1.5 million work hours have so far been registered without injuries at work which only demonstrates the determination of all participants to keep the safety on the construction site at a very high level.

During construction, the site is being visited by Entel's experts that prepared design documentation, in order to participate in finding the best solutions for performance of the works, as well as other colleagues gathering experience from construction of complex projects, which EfW plant Vinca certainly is, in order to prepare for prospective design challenges.

Preliminary works – October 2019

Construction site zone – May 2020

Construction site zone – October 2021

Erection of steam exhaust channel of the turbine, September 2021

Raising the part of screen tubes of boiler room July – August, 2021.

JSC ENTEL – the project of increase of liquid gas production in Qatar

ENTEL CONTINUES TO PARTICIPATE IN IMPLEMENTATION OF CAPITAL PROJECTS IN QATAR

Throughout its 30-year long business activity in Qatar, Entel continuously strived and succeeded to participate in implementation of the projects that could be considered capital, both in terms of their significance for the state of Qatar and in terms of their investment values exceeding several billion USD. Cumulative value of electric power transmission projects that Entel was engaged in as a consultant in the last couple of years exceeds 15 billion USD, whereas the value of combined plants for electric power generation and potable water production (Facility D and Facility E) is more than 3 billion each. Mega projects which should be mentioned include providing consultancy services on construction of metro in Doha, as one of the most advanced railway transit systems in the world, then participation in the construction of the first solar power plant in Qatar, as well as provision of consultancy services on the project of construction of mega tanks for the increase of strategically important potable water reserves in Qatar. In each of these projects, Entel had several important roles, from defining of technical solution, over design, to the management of project implementation.

Capital projects in the oil and gas sector are not rare. However, in the last year, the project of increase of liquid natural gas (LNG) production in Qatar (North Field Expansion – NFE project), which provides for the increase in production capacities by as much as 64% by 2027, caught the attention of the business world in this field. The value of already signed construction contracts is approx. 30 billion USD and it only covers the implementation of the first phase of the project.

It should be mentioned that Qatar, with the existing production capacities, is already the largest global exporter of liquid natural gas, which, with the export of crude oil and oil derivatives makes up the majority of state income. In spite of government efforts directed towards diversification of export income, the income of Qatar from the export of the above products still exceeds 50%.

Self-imposed 12-year long moratorium of Qatar on further development of LNG from the research field called "Northern Field" was terminated in May 2021, which enabled company Qatar Energy - QE (previously known as Qatar Petroleum), state-owned company for production of LNG, to continue with the development of the project for expansion of the exploitation of the resources in the above research area in the first half of 2021. This project includes construction of 6 new mega LNG plants (with annual production capacity of 8 million tons each), which will increase the annual national production from 77 to 126 million tons of LNG.

It is expected for the first phase of NFE project to increase the annual production capacity by 43%, i.e. from 77 to 110 million tons by 2025, whereas the second phase of expansion named North-Field-South (NFS), will additionally increase the annual production from 110 to 126 million tons. Apart from LNG, the project will include production of condensate, TNG, ethane, sulphur and helium.

The beginning of the production from the new plants is expected in the fourth quarter of 2025. The project represents one of the greatest investments globally in the field of power generation, transmission and distribution in the last few years, as well as the biggest expansion of LNG capacities so far.

The project is divided in six packages, out of which four will be implemented onshore, while the remaining two will be implemented offshore. The contract for construction of 4 new mega LNG plants, which is to be realised in the first phase of the project, is awarded to consortium Chiyoda (Japan) - Technip (France) (CTJV), while companies Samsung C&T (South Corea) and Técnicas Reunidas (Spain) were awarded contracts for expansion of LNG storage and loading facilities.

The remaining two packages for offshore development of NFE projects are awarded to company Saipem (Italy).

Entel, as a partner willing to actively participate and contribute to further development of Qatar, has been included in implementation of this project from its very beginning. Entel's team was engaged by company Chiyoda in preparation of Schematic Design for NFE expansion in the field of electric power supply and coordination with local electric power company KAHRAMAA. After successful completion of Schematic Design, cooperation with consortium Chiyoda - Technip (CTJV) continued on the main construction contract through two separate contracts for review and preparation of design documentation, evaluation of manufacturers and coordination for connection to the local electric power system. Entel is also engaged by company Samsung C&T on preparation and review of design documentation, as well as on supervision of construction and coordination with KAHRAMAA.

Cumulative value of the contracts that Entel concluded with general contractors is in the range of 3 million USD, with careful monitoring of continuation of the implementation of projects on which extension of engagement is expected.

Participation of Entel in such project of global proportions, as well as cooperation with global leaders in the field of oil and gas production and distribution, is a considerable success of our company. The experience and acquired reference will offer the possibility of further development and advancement of Entel on Qatar market, as well as in the Middle East region.

JSC VISOKOGRADNJA

DELTA HOLDING OFFICE BUILDING – DELTA HOUSE OCCUPIED

As we have reported in the previous edition, the works on the project of construction of Delta Holding office building in Novi Beograd were completed in June 2020. The works on the fifth floor for which design documentation was subsequently submitted were completed and the space was occupied on August 15th 2021. The building was accepted by Fire Police as well, without any remarks and the decision of the Fire Police was issued on October 26th. We are currently working on the technical acceptance of the building, as well as Leed certification of the building.

New office building of Delta Holding was occupied based on the permit for test use at the end of June of 2021, whereas the building was officially opened on July 1st 2021.

Representatives of the Client and Contractors at the official opening of the building

JSC VISOKOGRADNJA

TAKEOVER OF HYATT REGENCY ROSTOV DON-PLAZA, PHASE II, ROSTOV-ON-DON

Handover of the building of international conference centre and hotel Hyatt Regency Rostov Don-Plaza is in progress. The handover to the Client includes functional tests of service systems, control of performed works and equipment installed, remedy of defects, handover of the entire technical documentation and training of the Client's staff for proper handling and maintenance of the equipment and systems.

At the moment, for this purpose, 350 employees are engaged on the project, including an engineer team, and all works are expected to be completed by the end of 2021. Commissioning of the building is planned for January 2022.

АД ВИСОКОГРАДЊА

PERFORMANCE OF THE WORKS ON CONSTRUCTION OF THE NEW ATC TOWER IN NIKOLA TESLA AIRPORT IS ENTERING ITS FINAL PHASE

JSC Energoprojekt Visokogradnja is entering the final phase of construction of the new Air Traffic Control Tower (ATC) and Annex to the building of Air Traffic Control Centre (ATCC) Belgrade. The project is being implemented for the Serbia and Montenegro Air Traffic Services (SMATSA LLC) on international airport Nikola Tesla.

Through implementation of the requirements for occupational health and safety in special working conditions at great heights, our knowledgeable and experienced engineers have been coordinating the work activities of more than 35 subcontractors on closing of the building and performance of finishing works.

Finishing works of installation of sanitary fixtures and electrical accessories are currently being performed on the Annex to Air Traffic Control Centre. Ventilation, heating and automation systems are currently being commissioned and this will last until the end of December 2021. Final cleaning of the building started, as planned, in the beginning of December 2021. Façade works and interior MEP and finishing works – drywall contruction, tiling, metal works, completion of the works in the dome, are being performed on the building of the ATC Tower. Commissioning of the systems in this building will commence after completion of all the necessary works.

Throughout construction of this building, the team of Visokogradnja faced specific challenges. Being equipped with all modern systems of installations necessary for realisation of a specific air traffic control service and high level of requested quality of finishing works, made the construction of this building technically demanding. Coordination of the works of many subcontractors as well as coordination of designs and work methods in a manner ensuring optimum quality of construction, was a big challenge. In addition to this, as in all other construction sites, design team of Visokogradnja faced the challenge of maintaining the continuity of construction in the specific conditions of the pandemic of Covid 19. In spite of all of the above challenges, there are presently 180 - 220 workers on the construction site dedicated to the completion of building construction.

Construction of a new, 75-meter high tower will be completed 60 years after opening of the existing tower. The new control tower with operations room furnished with state-of-the-art equipment and a modern, energy efficient office building, were designed by JSC Energoprojekt Industrija. New buildings will ensure the conditions for unobstructed rendering of air traffic control services in a quality manner, taking into account the increase in capacity and the number of air traffic operations at Belgrade airport.

JSC NISKOGRADNJA – ongoing project

RECONSTRUCTION OF RAILWAY TRACK JAJINCI – MALA KRSNA IN THE FINAL PHASE

Performance of the works on the project of reconstruction of railway track Jajinci – Mala Krsna started in the spring of 2019, whereas the contract was signed on 28.12.2018. The Client on this project is company Infrastruktura zeleznice Srbije (Serbian Railways Infrastructure), while the consortium of contractors consists of Colas Rail in the capacity of leader and JSC Energoprojekt Nisokogradnja, with equal participation in the performance of works. Contractual value of the works is 39,253 million euros, whereas the share of EP NG is 18,925 million euros. Energoprojekt Niskogradnja is appointed for performance of the works on the substructure, facilities and railway crossings, tunnel reconstruction and signalling and safety and telecommunication equipment.

By the end of October 2021, approx. 94% of the works were completed and it could be said that the performance of the works on the project is in its final phase. The entire substructure is handed over to the partner that laid the tracks and is finishing the works on voltage release and final regulation of electrical grid, whereas Mala Krsna station was handed over to the Client in the beginning of October. Execution of railway crossings and completion of signalling and safety and telecommunication equipment are the remaining works to be completed in the end of the year. It is worth mentioning that, in spite of the big problems that the Contractor faced throughout the entire construction period (pandemic of COVID-19, suspension of works by the Ministry of Construction, Traffic and Infrastructure, obtainment of approvals for construction of bridges and tunnels), the continuity of construction was maintained and key intermediate deadlines were met pertinent to the completion of the works on the facilities and substructure.

Completed reconstruction

Track laid

Performance of works on railway crossings

JSC NISKOGRADNJA – ongoing project

PROGRESS OF THE WORKS ON THE CONSTRUCTION OF THE TECHNICAL AND PASSENGER STATION ZEMUN

The works on the project of construction of Technical and Passenger Station Zemun are being carried out at full speed. Project with value of 52 million euros provides for construction of a complexof buildings for maintenance, reception and diagnostics of trains which will operate on our fast tracks. The Client is "Srbija voz" on behalf of the Ministry of Construction, Traffic and Infrastructure. The project is implemented by a consortium of three companies led by our company JSC Energoprojekt Niskogradnja (38.79%). Other members of the consortium are JSC Energoprojekt Oprema (28.10%) and Colas Rail S.A.S (33.11%). This complex construction site spreads over the area of 35 ha, out of which tracks take up 23.31 ha. The built-up area of all buildings is 2.66 ha, roads 8.75 ha and other infrastructure (outside of the buildings) is 0.28 ha.

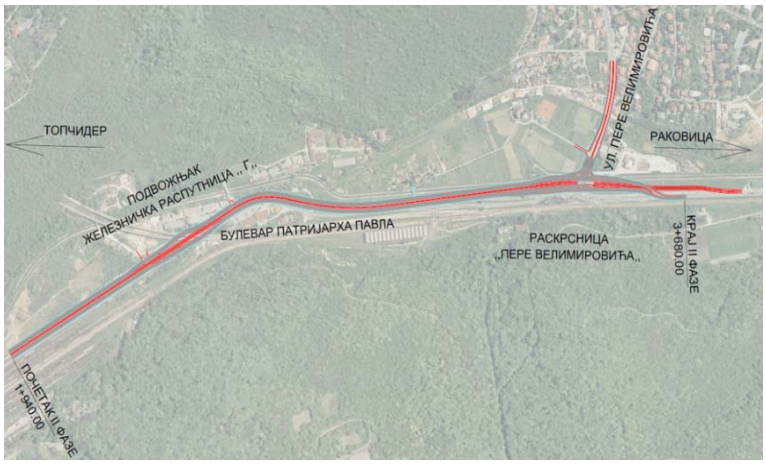
The works commenced in September 2019. The current health situation and pandemic of virus Covid 19, with all major problems with ensuring quality manpower, was reflected in the level of completion of the works. By the end of October 2021, a little more than 50% of the works were completed.

The scope of work, apart from the work on the substructure, implies construction of railway track structures, accesses, shunting station, drainage works, as well as reconstruction of the existing and construction of the new buildings (train hall, hangars with all their installations, train reconstruction hall) and our partner in these activities is Energoprojekt Oprema. The project in itself is very complex, since it includes several engineering disciplines, and besides, in the performance of the works we faced numerous discrepancies and the need for modernisation of the offered solutions, both in terms of installations and equipment and in terms of modifications of the structural design.

Due to implementation of Belgrade Waterfront project, it was necessary to move the former capacities for care and maintenance of railway vehicles for passenger transport from the area of Sava Amphitheatre. For this reason, Technical and Passenger Station Zemun was innovated and its construction continued with necessary capacities for the work on the maintenance of railway passenger vehicles in Belgrade railway node. Considering the current state of the works, we expect that the works be completed next year and that the defects liability period end in 2024.

JSC NISKOGRADNJA – ongoing project

CONSTRUCTION OF PATRIJARHA PAVLA ROAD



Energoprojekt Niskogradnja as the leader of a group of bidders, leads the construction of Patrijarha Pavla road. This road is a part of the traffic system of the city of Belgrade and functionally, as a main road it is intended for transit traffic. It constitutes a connection of the existing highway through Novi Beograd and Ada Bridge which form a part of main semi-ring with Patrijarha Dimitrija Boulevard i.e. roundabout, Ibarska road and bypass around Belgrade.

In the previous period, Niskogradnja, together with its partners, invested maximum efforts in meeting the set deadlines for traffic relocation. The challenge of performance of works in urban conditions is work organization and method in the conditions of continuous traffic. In implementation of the works on the entire profile of the road, it is necessary to remove the existing road. Work method implies performance of the works on the left road in their entirety first, thus enabling relocation of traffic from the existing to the newly built road. This opens the work items for execution of the right newly designed road. So far, 1,740m of the entire left road and 360m of the right road have been completed, as well as the entire access Pere Velimirovica Street and the intersection of the two streets. In the beginning of September, the traffic was relocated to the newly built section with intersection fully equipped with traffic lights in full operation mode. This considerably diminishes traffic jams and marks the commencement of the works on the right road.

The works on demolition, excavation, fills, laying of underground services and construction of road structure are being carried out as per the Work Programme.

During performance of the works, the Secretariat for Public Transport established that the existing design is not compliant with traffic and technical conditions. The Engineer ordered the Contractor to sign a contract with the Designer on making necessary modifications. The work on the modifications of the design documentation for the tramway track elements is progress. The commencement of the work on tramway track is conditioned by the decision on the width and the elements of the tram lane profile, hence corresponding modifications of the design are expected.

Let us be reminded that, apart from the construction of the road with the length of approx. 1.74 km and tramway track with c. 3,775 km of tracks, the contract in the value of 9,783,189 euros, also includes construction of accompanying infrastructure: water supply and sewage system in the length of 9.2 km, the entire overhead lines, cathode protection, street lighting, protection and reconstruction of the existing electrical and telecommunication facilities, traffic equipment and signalization, as well as landscaping. The investor of the project is the city of Belgrade.

АД НИСОКОГРАДЊА – пројекти у реализацији

VINCA LANDFILL: PHASE I HANDED OVER TO THE CLIENT, WORKS ON PHASE II CONTINUED

Performance of the works on the project of construction of Vinca landfill is entering its second phase. During the summer months, the first phase of the works consisting of the works on the temporary and a part of the new landfill was completed. Partial technical inspection of the performed works is in progress and this functional unit is already handed over to the Client and end user, company SPN Beocista Energija LLC. According to the physical parameters of business operations, approx. 50% of the total works under contract was completed by the end of October.

In parallel with technical acceptance of phase I of the works, the procedure of modification of the design of phase II is in progress with Energoprojekt Hidroinzenjering appointed on its preparation and the performance of the works on the phase II consisting of the reconstruction of the old landfill and a part of the new landfill ("Residues and Unprocessed") commenced. At the moment, the works on construction of the embankment in Flare & Living Area are in progress and have been completed up to the final layer of embankment and modification of the design as per the Client's requirements is in progress. Apart from this, the resources of EPNG are engaged in the excavation of Residues and construction of dividing embankment between Residues and Unprocessed, as well as the activities necessary for introducing subcontractors engaged on telecommunication works and construction of the lower platform.

JSC VISOKOGRADNJA, JSC URBANIZAM I ARHITEKTURA, JSC INDUSTRIJA, JSC HOLDING – commenced works on the construction of residential complex in Bezanijska Kosa

RESIDENTIAL COMPLEX KOSA KVART - THE PLACE OF HUMANE AND COMFORTABLE LIVING

Implementation of the project of residential complex Kosa kvart in Bezanijska kosa, in block 24, at the corner of Kolumbova and Magelanvoa Street, with participation of JSC Visokogradnja, JSC Urbanizam i arhitektura, JSC Industrija and JSC Holding, is an excellent example of successful cooperation, team work and synergy of several companies from Energoprojekt Group, in pursuit of a common business objective.

JSC Energoprojekt Visokogradnja is the investor of the project and general contractor in construction of residential buildings and required traffic and plumbing infrastructure. The entire design documentation for construction of the buildings was prepared by company JSC Urbanizam i arhitektura, which is to also perform supervision during construction. The entire urban, geodetic and design documentation for the required public traffic and plumbing infrastructure is being prepared by JSC Industrija, which also carried out technical review of the Design Development Phase.

A number of complex activities have been undertaken throughout 2020 and 2021 in order to acquire conditions for implementation of this project. The prerequisite for all further actions was signing of the contract for lease of building land which JSC Energoprojekt Visokogradnja, as the user of the land, signed with the Property Directorate of the Republic of Serbia for both cadastral plots in block 24, thus realising the required legal right on the land for filing a request for building permit.

Since the planned buildings in block 24 require construction of public traffic and municipal infrastructure, the contracts on design and construction of the required public infrastructure were signed with "Elektrodistribucija Srbija" (Electric Power Industry of Serbia), "Beogradska elektrane" (Belgrade Power Plants) and "Direkcija za građevinsko zemljište i izgradnju Beograda" (Belgrade Land Development Public Agency) establishing mutual obligations on construction of the required infrastructure for three planned perimeter city roads.

Bezanijska kosa was recognized on the real estate market of Belgrade as a location well-connected with the city and yet, sufficiently removed from the city noise and pollution to ensure the needed peace and life in accordance with healthy principles. Kosa kvart is situated on the slope of a hill, on a plateau overlooking the blocks of Novi Beograd, in a separate, tranquil part of Bezanijska kosa settlement, which is a value in itself in terms of family residence. The centre of the settlement and public facilities necessary for a quality lifestyle (primary schools, kindergartens, Clinical Centre Bezanijska kosa, green market, shops, post office, banks, pharmacies, church etc) are in the vicinity of the complex. The location is well connected in terms of traffic with the central part of Novi Beograd, blocks near Sava River and Sava River itself, highway, Zemun, as well as Nikola Tesla Airport.

In designing residential complex Kosa kvart, the concept of humane living was applied in the buildings with small number of floors that offer their residents total comfort, adjusted to the needs of modern living, while simultaneously giving a sense of belonging, of being tucked away and of warmth of family atmosphere. Block 24 consists of two cadastral plots, with a total area of 12,483m2, wherein, two units: block 24A and block 24B are planned for construction of residential buildings in a row with the following number of floors: ground floor, first floor and setback floor. Each unit contains six buildings in a row which form two Cyrillic letters "C" facing one another. Each of these buildings in a row in blocks 24A and 24B have separate entrances which connect the upper floors and shared underground garage with vertical circulations. One lift is provided in each of the twelve buildings in a row (6 in each block). The positions of the planned buildings clearly define the interior space – yard with harmoniously landscaped green areas, which will be equipped with modern elements of site furnishings (benches, children's playground, lighting), which constitute a separate ambience and quality of this complex. Design provides for 30% of green areas in direct contact with the ground. Entrances into the buildings area provided on their external sides, facing the streets bordering the block.

This part of the complex is provided with presentably landscaped green areas with tree lanes, providing additional privacy to its users.

The buildings are strictly residential, without commercial space, and apartments are provided on all floors, including the ground floor. Total designed gross area of the buildings is 26,739.46m2, out of which gross area of above ground floors is 18,667.32m2. A total of 168 apartments are designed, with a total saleable area of 15,683.29m2, 84 apartments in each unit, adjusted to the market and suitable target groups of buyers. Based on the structure, 68 two bedroom apartments, (55m2 - 75m2); 70 three bedroom apartments (77m2 – 100m2) and 30 four bedroom apartments (94m2 – 138m2) are provided. All apartments are provided with terraces, whereas individual apartments on the ground floor, oriented towards the perimeter streets of the block, are provided with a belonging part of the plot – a yard with the apartment, as a special feature, rarely found in the offer of apartments in Belgrade.

Underground garage level is intended for parking of passenger vehicles and for technical rooms, reached by the tenants by lifts, which contributes to the living comfort. Two two-way ramps are provided for each block enabling vehicular access in two separate underground single-storey garages from Balticka Street, separating block 24A from block 24B. Underground garage of block 24A is provided with 93 garage spaces, whereas block 24B will contain 101 garage space, while a number of spaces will be provided for electric vehicle charging (wall box). Additional 8 garage spaces are provided in each block for persons with disabilities.

Since the buildings are planned for construction in a quiet, comfortable environment and a neighbourhood with low public traffic frequency in perimeter streets, design provides for terraces as the dominant architectural feature. Façade finish will consist of a combination of brick (decorative facing brick listello) and plastered surface with high-quality façade paint. Incorporation of high quality materials is provided in accordance with the planned use and energy efficiency principles.

The entire design documentation for construction of residential buildings with 3D models and catalogue, was prepared by a young and ambitious design team of JSC Urbanizam i arhitektura. The author of concept design is architect Marija Ibrajter, whereas the principal architect is Aleksandra Miljkovic. Technical control of Design Development Phase for the residential complex was carried out by company JSC Energoprojekt Industrija.

Near the end of July 2021, building permits were obtained for preliminary works for both plots and Energoprojekt Visokogradnja completed all preliminary works which included erection of temporary construction site fence and temporary construction site structures, earthworks up to excavation level for construction of foundations, provision of all temporary services for the purpose of construction, erection of cranes for both buildings and other preliminary activities in preparation for construction.

Building permits for both blocks were obtained from the Secretariat for Urban Planning and Construction of the City of Belgrade on October 22nd 2021 and the works on construction commenced right away. General Contractor on construction of residential buildings and required traffic and plumbing infrastructure is the investor of the project – JSC Energoprojekt Visokogradnja. Miladin Milovic, MEng was appointed as the Project Manager, whereas the Principal Construction Engineer is Lidija Kovacevic, CE. Planned completion deadline is the end of 2023, taking into account the completion of extensive work on the required traffic and municipal infrastructure. Construction of the buildings will be supervised by the engineers of JSC Urbanizam i arhitektura.

Regarding the design and construction of the required traffic and plumbing infrastructure, and based on the contract on shared preparation and furnishing of building land for the purpose of construction of buildings in block 24, signed with Belgrade Land Development Public Agency in July 2021, the investor of the project is obliged to prepare the entire urban, geodetic and design documentation, obtain the conditions of public utilities, ensure technical inspection, obtain required building permits and build the required traffic and plumbing infrastructure for block 24, as well as to ensure technical inspection of the completed works. The value of these works was estimated by the Agency at RSD 88,249,743.00, and the obligation of payment of contributions for building land development for this location was deduced by this amount. General Contractor will be JSC Energoprojekt Visokogradnja, whereas the entire design documentation will be prepared by JSC Energoprojekt Industrija. Principal Designer is Gordana Lazic Tomic, M.Sc. (C.E.). Construction supervision will be carried out by Belgrade Land Development Public Agency.

Architects of Urbanizam i arhitektura are offering explanations and advices in selection of apartments in Kosa Kvart complex to the first buyer, an architect, our compatriot living in Ghana.

The planned residential complex in Bezanijska Kosa provoked great interest of potential buyers in the previous period. More than three hundred interested buyers signed up even during design phase with the Department of Real Estate Sale of Energoprojekt Holding, knowing the reputation and reliability of Energoprojekt, as well as the advantages of this location. The sale of the real estate is expected to commence at the beginning of 2022.

Interested buyers can receive all the required information in the department for real estate sale in Energoprojekt office building or on the following phone numbers: 011/310-18-93 and 310-18-94, as well as via E-mail: prodaja@energoprojekt.rs. Basic information on the project can be seen on the Energoprojekt webpage under Real Estate section: http://www.energoprojekt.rs/real-estate/

JSC ENTEL – TWO MAJOR JUBILEES

30 YEARS OF SUCCESSFUL BUSINESS OPERATIONS OF ENTEL IN QATAR

With its geopolitical situation, rich and exciting history, religious and cultural diversity, significant energy resources and powerful economic impact, Middle East is certainly one of the most turbulent regions in the world. Consequently, Entel's thirty-year presence in the Middle East is enriched with various events which, to a smaller or greater extent affected the business operations of the company and imposed the need for constant adjustment, posing a challenge of its own.

Qatar is situated on the peninsula in Persian Gulf and forms a part of Arabian peninsula. It covers an area of no more than 11,581 km2. This young state only gained independence in 1971. From a modest oil producer, with restrictive development policy, insufficient production of electric power, regular power outages in the summer period, relatively small population (below 500,000, including foreigners who made up approx. 70% of its permanent population) and national income of approx. USD 6 billion or USD 12 thousand per capita, it has become one of the richest countries in the world. Gross national income increased thirty-fold and became biggest per capita in the world, whereas the population increased sixfold. The state of Qatar is the third in the world in production and the first in the world in the size of its liquid gas carrier fleet. It has a stable and modern energy system. The fact that it was awarded hosting the world championship in football in 2022 and many other significant sporting and cultural events, gives Qatar a heightened prestige.

Entel had a similar growth path as the state of Qatar. From an unknown, relatively small consultant from Eastern Europe, from a country under United Nations sanctions, to a recognizable, even dominant consultant in the Middle East region, within the domain of its field of activity.

In October 1991, Entel was awarded the project of development of the electric power infrastructure of Qatar (Phase 4), which initiated cooperation with its primary and most significant client, then Ministry of Electricity and Water renamed in 2001 to Qatar General Electricity and Water Corporation – Kahramaa, which has been continuously active to this day. The arrival on the market of Qatar was difficult and professionally challenging. For the first time 220 kV voltage level was introduced in Qatar, as well as XLPE cable technology on that level, Fiber optic technology for communication, modern national control centre and digital control system. Entel's professional team responded to the challenging conditions of contracts with incredible enthusiasm. A team composed of top-notch engineers with its commitment and great effort, as well as desire to prove themselves in a new business environment, established stable foundations for further business operations. What is most important is the fact that the trust of a key client was earned. In this period, Entel' company culture was created through slogan "Partnership with a client", as an approach to project implementation that Entel has become recognizable for and that makes it stand out from the competition. A number of new contracts with permanent clients is a clear evidence that the above approach to business proved to be the right one.

Imposition of sanctions to Serbia by the United nations, as well as a difficult situation in 1992, posed the threat of contract termination by the client. After difficult and exhausting negotiations, the contract was retained after all, but with provision of a guarantee in the value of 100% of the contract. In the above period, contacts with other potential clients were realised, so the first contract with Qatar's oil and gas company, Qatar Petroleum (QP), was concluded as early as in 1992. This was a brave entry into the oil and gas sector which only grew stronger with time. The first project with Qatar Petroleum was expansion of electric power system in the city of Dukhan where oil sources are found. It is interesting that in 2021, a project was offered for assessment of the current condition of the buildings within the above project and their potential replacement, which points to the conclusion that Entel's work experience in Qatar exceeds the useful life of the energy facilities built in the same period.

After the change of government in Qatar in June 1995, positive impact on the economic growth was felt, especially in the field of liquid gas production and transport. What was key for Entel's business operations were considerable investments which were made in this period in the projects for electric power generation and transmission. With these changes started the implementation of Phase 4 of expansion of power transmission system in Qatar, which was long postponed after contract award in 1992. The construction value of Phase 4 was USD 1 billion, including the costs of financing. Its implementation initiated the activities on project management and construction supervision, which resulted in engagement of a considerably larger number of engineers, as well as more regular income that ensured a more peaceful period of business operations. The end of nineties was marked by a big oil crisis, so the possibility of working on other projects was reduced.

In period 2005-2010, Entel was awarded four capital infrastructure contracts: Phase 6, Phase 7, Phase 8 and Phase 9 of expansion of the power transmission system of Qatar in the total value of approx. USD 100 million and cumulative construction value of nearly USD 6 billion. With such projects, Entel doubled its annual turnover for four years in a row, from USD 2 to 32 million and practically opened a new dimension of business operations which is maintained to this day. Apart from technical and contractual requirements of the above projects, as well as other active projects on which the company was engaged, it was a big challenge to ensure required business infrastructure, both in terms of the larger number of employees and in terms of provision of work and accommodation facilities, transport etc. In this period, with the change of employee structure, Entel became an international company.

In the period after 2010, Qatar was awarded the organization of the world championship in football 2022. The award of such a significant sporting event is an obvious confirmation of the significance of Qatar on the global level, but the thing most relevant for Entel was initiation of the new wave of development projects in different infrastructure fields. Due to the increase of business capacity and change of legal regulations governing the operation of commercial entities, Entel changed the location of its seat, moving to a strictly business part of Doha. The award of new contracts for Phase 11, Phase 12 and Phase 13 of expansion of power transmission system and particularly the new type of project for construction of mega tanks for storage of strategic water reserves, where Entel has the role of Project Manager, represent key events that marked the continuation of business operations in Qatar. Total value of these capital contracts is more than USD 120 million, whereas the construction value exceeds the amount of USD

The capital of Qatar, Doha, is a modern business centre today

8.5 billion. Entel has, throughout the course of years continuously participated in projects which involved introducing new modern technology in Qatar and, currently, it is involved in implementation of the project of construction of the first big solar power plant in Qatar with rated capacity of 800 MW.

Two big negative impacts on the business operations of the company in Qatar occurred in the recent past. First in 2017, four Arab countries imposed economic and political sanctions to Qatar which had an adverse effect on the business operations in the entire country and in the last two years, the pandemic caused by virus Covid 19 made business operations difficult on the global level, Qatar included.

The success of Entel's company in Qatar was realised owing primarily to its employees, from the experienced management to young ambitious engineers, with considerable support from Belgrade. With joint activity and commitment they contributed to Entel being a recognizable consultant's name today not only in Qatar, but in the entire Middle East. What makes the company in Doha unique is most certainly its manpower structure which includes colleagues of 11 different nationalities communicating in 15 different languages.

Entel in Qatar passed through a period of great growth and the employees are now facing a difficult task which is primarily to maintain, but also to increase the scope of its business activity. However, with the existing experience, achieved position on the market, developed business infrastructure, as well as available staff, Entel may confidently walk into new business successes towards its next goal – marking the next 30 years of business operations in Qatar.

JUBILEES OF EPE: 25 YEARS OF BUSINESS OPERATIONS IN OMAN

This year, Entel's foreign entity in Oman is marking 25 years of successful business operations. Oman is governed as a sultanate located in the south-eastern part of the Arabian peninsula and bordered by Saudi Arabia, United Arab Emirates and Yemen. Its is predominantly a desert country, with over 1,300 km long coastline. The capital of the Sultanate of Muscat.

The development of Oman intensively began with the arrival on the throne of sultan Qaboos Bin Said from Al-Said family in 1970, who was, following his death in January 2020, succeeded by his cousin Sultan Haytam Bin Tariq Al Said. The period from the arrival to throne of Sultan Qa-boos in Oman was known as the period of renaissance. Entel had the privilege to witness, in a sense, the intensive growth of Oman under the leadership of sultan Qaboos, as well as to actively participate in the development of infrastructural projects in the fields of development of electric power and water supply systems. It is noteworthy to that Entel is the only Serbian company which has been continuously operating on the market of Oman.

All started as early as 1995, when Entel's team from Qatar submitted a bid for provision of consultancy services for construction of 132 kV substation and overhead line in Oman. Bear-ing in mind that there was no immediate feedback on the submitted bid, it was considered that the above bidding was unsuccessful. However, we subsequently obtained information that the Client was not satisfied with the consultant selected in the procurement procedure and, 8 months after commencement of project implementation, it was decided to award the contract for the above consultancy services to Entel.

Team led by Milan Maksimovic, M. Sc. (E,E.) travelled to Oman and opened Entel's office in a residential building where the work space was on the ground floor and residential space was on the upper floor. Soon after the first awarded contract followed others, also in the field of electric power industry. In parallel with the increased scope of work, there was a need for larger office space, so the head office of the company was moved to a larger building.

From the beginning of its engagement in Oman, Entel has actively participated

Office space of Entel in Oman in the beginning of 2000s

in the development of the electric power system of Oman, with voltages of 132kV, 220kV and 400kV, as well as the belonging substations, where more than 1000 km of overhead lines and several dozens of high voltage substations were designed.

Business activity expended to the field of water supply systems in 2005, when the contract for provision of consultancy services on the water supply of Sohar region was signed. On the above project, Entel was in charge of preparation of design documentation, and then of construction supervision. The project consisted of design and installation of 300 km long transmission pipeline with pipe diameter up to 1600 mm, dozens of tanks and pumping stations. The largest potable water tank in Oman at the time was built on this project, with the volume of 150,000 m3. Successful implementation of the above project was followed by obtainment of new contracts, primarily in the regions of Ad Dakhiliya and Ash Sharkiya where Entel was again in charge of preparation of design documentation of water transmission and distribution systems and then of construction supervision. Total length of the transmission pipelines was more than 1000 km, pipeline diameters 1200 mm, while the total length of distribution system reached 3000 km, with pipe diameter from 110 mm to 600 mm.

Successfully implemented projects contributed to earning the trust of the investors, both in the field of power generation, transmission and distribution and in the field of water supply,

Entel's office building in Oman

which resulted in the fact that Entel was rated as the best consultant in the field of power genera-tion, transmission and distribution and water supply in Oman in 2020.

The achieved results and company's determination to operate in the future on the market of Oman resulted in construction of office and residential building which was ceremonially opened in January 2014. Construction of office building proved to be significant since the Clients recognised Entel's intention to be an active participant in prospective development of Oman.

The success achieved in the previous 25 years, as well as the employee commitment and business policy, bind the company towards further growth and development possible only with constant adjustment to the global changes in the field of power generation, transmission and distribution and water supply, as well as adjustment to the requirements of local markets. The reputation that Entel has acquired with its business operations in Oman was realised under the leadership of director Milan Maksimovic. The obligation to continue with development and achieving good results in Oman was on 15.10.2021. taken over by Dusko Tomic who has a long-standing experience in working in Oman, as well as management experience. It is ex-pected that the subsequent decades of Entel's presence in this beautiful county will be marked with progress and achievements.

JSC HIDROINZENJERING – new licenses for design in Serbia

SINCE 2021, HIDROINZENJERING CAN DESIGN SHIP LOCKS AND NAVIGABLE CANALS

In the end of September, Energoprojekt Hidroinzenjering had the Decision on fulfilment of requirements for preparation of technical documentation (so-called "big license") modified by the Ministry of Construction, Transport and Infrastructure with addition of two new licences:

- P170G1 – design of structures for navigable canals and ship locks which do not form parts of hydropower systems;
- P170G3 – hydraulic engineering projects of navigable canals and ship locks which do not form parts of hydropower systems.

Obtainment of these licences enabled Hidroinzenjering to participate in a tender and sign contract for preparation of design documentation for improvement of the conditions for guiding ships within the dam on Tisa River.

Hidroinzenjering now owns licences for preparation of technical documentation for the following structures:

- high dams and reservoirs filled with water, tailings or ashes;
- hydropower plants with accompanying dam with capacity of 10 MW or more;
- hydropower plants with capacity of 10 MW and more;
- substations with capacity of 110 kV and more;
- interregional and regional water supply and sewage structures;
- potable water preparation plants with capacity of more than 200 l/s;
- waste water treatment plants with capacity of more than 200 l/s;
- regulation of flood protection of urban and rural areas greater than 300 ha;
- hydraulic structure in waterways;
- navigable canals and ship locks which do not form parts of hydropower system;
- regional landfills, i.e. landfills for disposal of non-hazardous waste for areas with more than 200,000 inhabitants.

JSC HIDROINZENJERING – exchange of knowledge

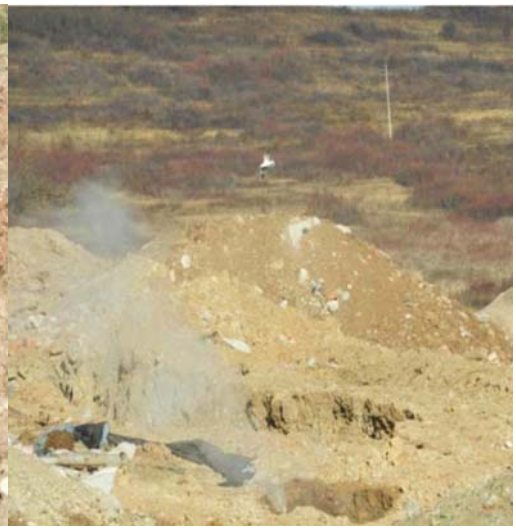
HIDROINZENJERING PROFESSIONALS ON THE 9TH INTENATIONAL COFERENCE OF THE ASSOCIATION OF GEOPHYSICISTS AND ENVIRONMENTALISTS OF SERBIA

In the period from 6th to 9th July, 9th International Conference of AGES-a (Association of Geophysicists and Environmentalists of Serbia), took place on Kopaonik. AGES is a member of Balkan Geophysical Society and an associated member of EAEG (European Association of Geoscientists and Engineers) and SEG (Society of Exploration Geophysicists).

The engineers of JSC Energoprojekt Hidroinzenjering, experts in this field, Milan Milosevic and Milan Mitrovic held a presentation of paper: "Methodology and the Results of Geophysical Testing at Vinca Landfill" at the conference, within "Environmental Geophyscis" section. The presentation included the conditions of performance of geophysical investigation works which posed a particular challenge since the investigated terrain is constantly moving, occasionally with landslides and slips. The team moved through a very unstable terrain of unconsolidated or partially

Presentation of the representatives of Hidroinzenjering M. Mitrovic (left) and M. Milosevic (right)

2. Fissures



3. Craters with emanation of gases

4. Hydrothermal activity

5. Hot spots (eternal flames)

consolidated waste prone to sliding and moving. At some points, waste was mixed with some deposited building material with protruding rusty hardware and bars.

At some locations, there is continuous combustion (flame) which is why the measurements were carried out under the conditions of extremely high temperatures up to the point of melting of plastics, and, as a result of geochemical activities, craters were formed.

The participants of the conference have been acquainted with occupational safety measures taken by the geophysical team, in accordance with the rules of occupational health and safety of Energoprojekt Group, so the testing was carried out with minimum consequences to the health of the investigators.

They were then acquainted with applied geophysical methods and their results, both for defining of physical parameters of the natural environment and anthropogenic sediments. An integral abbreviated preview of the research conducted in 2017 and 2020 was presented. Geophysical methods offered solutions for multiple problems: the boundaries between natural and artificial environments, their elastic and geoelectric properties, leakage zones and saturated zones. Seismic hazard and seismic microzonation were also analysed. It was concluded that the increments of seismic acceleration in landfill body was almost double in undrained than in drained condition.

Finally, the conclusions were drawn and offered recommendations for prospective research in the environments of similar characteristics.

The presentation was attentively followed and provoked great interest, especially among the colleagues from Croatia and Bosnia and Herzegovina, where they are facing similar problems. Useful contacts were made which could lead to future cooperation. The participants were acquainted with the abilities of the geophysical team of JSC Energoprojekt Hidroinzenjering of successfully overcoming all kinds of challenges and finding suitable solutions. Presentation of a part of the results of the activities on Vinca project is all the more significant since the environmental problems and methods of their solving are becoming an increasingly important social issue and entering domestic and global strategic plans. Remediation of this facility is an example of multidisciplinary cooperation of a large number of related companies within Energoprojekt Group and, owing to the geophysical team of Hidroinzenjering consisting of experienced engineers, technicians and experts, direct cooperation with other disciplines was enabled, without engagement of subcontractors and outsourcing.

The role of geophysics in solving environmental problems was discussed at 9th international conference of AGES. Panel discussion "Atlas of geophysical sustainability: Assessment of the possibility of implementation of geophysics in accordance with the goal of sustainable development of UN" was of particular significance. The authors of this paper Maria A. Capello, PhD, Anna Shaughnessy and Emer Caslin, PhD, participated in the discussion via video link, whereas the moderator was Snezana Komatina, PhD. This discussion showed that geophysics can contribute to each of 17 sustainable development goals (SDGs) of the United Nations.

Particular attention was dedicated at the conference to the position of geophysics in the wide spectrum of its implementation in solving environmental, structural, archaeological, geological, oil and mining related problems. It is present in a large number of projects, but it is usually less recognisable and thus unjustly underrated, since it always forms a part of some bigger whole and, as such, is an invisible tool assisting other disciplines. On the other hand, its significance is in its width and multidisciplinarity. Being in shadow itself, it sheds light on the hidden secrets of nature.

JSC URBANIZAM I ARHITETKTURA

PARTICIPATION AT THE PROFESSIONAL MEETING OF ELECTRICAL ENGINEERS: 2021 SCHNEIDER ELECTRIC DESIGNERS' DAY

The necessity of continuous professional improvement, creation and implementation of innovations in the purpose of long-term sustainability of business operations, satisfaction of clients' requirements and environmental protection are among the business goals and impera-tives of JSC Urbanizam i arhitektura, as well as of the entire Energoprojekt Group.

JSC Energoprojekt Urbanizam i arhitektura endeavours to enable engineers to keep up with the innovations in all fields of technics and modern technologies and their implementation. Special attention is paid to following European trends in the field of environmental protection and sustain-able development which is rightfully becoming the priority theme of each project.

Photographs from the gathering

Upon invitation from the organizer, Schneider Electric LCC Serbia, a leading company in the field of engineering and industrial software, five electrical engineers of JSC Urbanizam i arhitektura: Biljana Ivkovic, Ivana Serbula, Mioslav Drekic, Vladimir Grbic and Vladimir Zivkovic, as well as their colleague Andrijana Janjusevic, participated at professional gathering traditionally organized every year under title "Designers' Day".

The lectures were held on October 7th in the hall of the National Driving Academy, in the vicinity of Belgrade (NAVAK centre in Subotiste – Pecinci), where company Schneider Electric present-ed new trends in design and solutions for electrical installations and equipment for all types of projects. The presentation was attended by approximately 40 designers from the entire Serbia. The presentation included demonstration and implementation of the following innovative solu-tions:

Software for configuration of distribution boards

New software was presented for configuration of distribution boards "EcoStruxure Power Build software". Through the use of new software, configuration of typical tested boards "Prisma", as well as other types of boards is much more efficient, and the time of configuration is shorter. User software is compliant with different IEC standards and enables creation of Connected op-tion in only a few clicks using "Make it Smart!" function. This is a part of software package for life cycle of user equipment, connected with platform EcoStruxure.

Medium-voltage plant of type SM AirSeT

New medium-voltage switchgear SMAirSeT of type AIS (air-insulated) drew a lot of attention, since it considerably contributes to the reduction of emission of harmful SF6 gas and protects the environment. The new switchgear uses innovative technology based on clean air combined with vacuum switches of new generation, retaining the same dimensions, for easier upgrade of the existing substations. Considering the fact that electrification is spreading around the world and that renewable energy sources are being increasingly used, there is a growing need for even more medium-voltage switchgears. By introducing new technology without harmful SF6 gas, which replaces this greenhouse gas with clean air, a key step forward was made in decarbonisation of electrical system. In order to clarify the significance of this switchgear in environmental protection, it should be said that only 1kg of SF6 gas released into the environment is comparable to the quantity of CO2 gas released by a car after crossing 100,000km

New medium-voltage switchgears SMAirSeT are already installed in several substa-tions with users throughout Europe, among which are E.ON in Sweden and GreenAlp in France. The number of locations where these switchgears are used is in continuous growth, including the networks of private industrial and commercial users. SMAirSeT solution has the same functions as medium-voltage switchgear of previous generation SM6, but without the need for disposal of the gas at the end of its useful life.

Physical infrastructure of Data Centre

Modular solutions for Data Centre which unify power supply, cooling, management and safety as support to IT sections in "edge" environments have been developed. Schneider Electric as-sists in development of strategic solutions for Data Centre in "cloud" solutions for regional and local "edge data centres", which increase computer capacities closer to users or data sources.

AVEVA industrial software

Industrial software from AVEVA portfolio which enables maximum increase of value of industrial data centre and infrastructural capacities was also presented. AVEVA and Schneider Electric have a long-standing partnership. A combination of solutions for integrated digital transformation connects tools for management of energy and automation with leading industrial software which includes engineering, business operations and maintenance. The goal is increase of profitability, reduction of risk and increase of sustainability.

The conclusion of our electrical engineers is that the lectures were very useful for their future work, since the themes are highly current and the presented solutions have already been imple-mented in different parts of the world. They believe that some of these technologies and innovations could be implemented in their prospective projects.

JSC URBANIZAM I ARHITEKTURA

SUCCESSFULLY COMPLETED EMS AND OH&SMS RECERTIFICATION, AS WELL AS SUPERVISORY QMS CHECK WITHIN THE INTEGRATED MANAGEMENT SYSTEM (IMS)

The recertification of Environmental Management System (EMS) – as per ISO 14001:2015 and Occupational Health and Safety Management System – as per ISO 45001:2018 (OH&SMS), as well as supervisory verification of Quality Management System – as per ISO 9001:2015 was successfully completed on 24.11.2021. at Energoprojekt Urbanizam i arhitektura by a renowned company "SGS Beograd", a member of SGS Group – the world's biggest company for verification, testing and certification.

Let us be reminded that company JSC Energoprojekt Urbanizam i arhitektura has a certified QMS since December 2005, whereas implementation of Integrated Management System (IMS) was completed with certification of EMS and OHSAS in November 2018.

JSC VISOKOGRADNJA

RECERTIFICATION VERIFICATION OF QMS, EMS AND OH&S TOOK PLACE IN JSC ENERGOPROJEKT VISOKOGRADNJA

The recertification verification of quality management system and environmental management system and recertification verification and migration of occupational health and safety management system took place in joint stock company Energoprojekt Visokogradnja on 30th and 31st of August 2021.

Based on the results of conducted recertification verification of quality management system and environmental protection system and recertification verification and migration of occupational health and safety management system, the checking team of certification body of SGS recommends issuing new certificates on compliance of quality management system with the requirements of standard SRPS ISO 9001:2015, environmental protection system with the requirements of standard SRPS ISO 14001:2015 and occupational health and safety system with the requirements of standard SRPS ISO 45001:2018 for the period of three years.

JSC ENTEL

ENTEL AT WETEX FAIR IN DUBAI

Global epidemiological situation in 2020 required that Entel realises its traditional presence at WETEX fair, dedicated to the field of power generation, transmission and distribution, water management, technological innovations and environmental protection in Dubai through a virtual event visualised by the organizer, Dubai Energy and Water Authority (DEWA). Although it allowed trying out of innovative virtual platform which was used for the first time for simulation of fairs and similar events, this solution showed that, in this case, virtual reality cannot match the actual fair events where participants can directly communicate in order to introduce themselves, exchange ideas and information. From all of the above, the decision of the organizer to organize this year's WETEX as a standard fair event met with wide approval of participants and visitors alike.

This year's, 23rd WETEX took place in the period from 5th to 7th October. This year's event was particularly attractive since the fair was organized within the world exhibition complex EXPO2020, as a result of the decision that company DEWA be the official partner in organization of EXPO2020 event. This organization additionally raised the importance of WETEX and drew many visitors to the event.

At this fair, Entel was represented by the representatives of Entel's companies in Dubai, Abu Dhabi and Serbia, who talked with the visitors about their reference projects realised on different markets, options for entering new markets or the possibilities for new cooperation in the already conquered fields. Organized by the Serbia Chamber of Commerce, Entel's stand was also visited by a delegation of the businessman from the Republic of Serbia who expressed particular interest in learning the secret of the long-standing success of a Serbian company on the demanding market of the United Arab Emirates.

What makes this year's WETEX particularly stand out from the previous ones is a visible dominance of the themes pertinent to implementation of the technologies based on the use of renewable energy sources, primarily

solar power, but also the use of hydrogen for the storage of produced electric power, as a solution that some see as the solution of sustainable global energy future. The above themes were at the forefront, in accordance with current energy-related considerations on the global level, but also with low-carbon strategy of the United Arab Emirates for planning the realisation of carbon neutrality of the Emirates by 2050. It will be very interesting to follow the transition of this country, traditionally oriented towards the use and export of fossil fuels which never refrained from taking the initiative in implementation of ambitious projects based on the use of innovative technical solutions in any field. Dubai particularly stands out as a polygon for pioneering implementation of the most prestigious global accomplishments in infrastructural solutions and projects. Entel will, as it has so far, follow the energy transition of the Emirates and contribute to the accomplishment of the adopted goals through the services provided in infrastructural fields of its activity where it has been contributing to the spectacular growth of the Middle East for the last 30 years.

Entel's representatives at this year's WETEX

Discussions were held in adherence to the prescribed epidemiological measures

JSC HOLDING - KOPAONIK SCHOOL OF LAW

CONTRIBUTION OF THE PROFESSIONALS OF EP HOLDING ON THE SUBJECT OF FIDIC CONTRACTS

34th conference of Kopanik School of Natural Law titled "Law Enforcement and Security" is being held this year. This school represents a prestigious legal counselling and has been organized since 2005 under the patronage of UNESCO, UN Educational, Scientific and Cultural Organization. Professional paper of Dragica Cukic, legal adviser of JSC Energoprojekt Holding on subject: "Penalty in construction contract when implementation of FIDIC 1999 Conditions of Contract is prescribed by the contract and the applicable law is Serbian Law" was accepted and published within section "International Commercial Contracts / Arbitration". The editors of the section are prof. Jelena S. Perovic Vujacic, PhD, Chairman of Kopaonik School of Natural Law, Slobodan Perovic, Full Professor of the Faculty of Economics of the University of Belgrade, Thomas Meyer, Ph. D., Head of the Legal Reform Program, GIZ and Natasa Hadzimanovic, Ph. D., a lawyer from Switzerland.

Foreign investments in the field of construction in the Republic of Serbia imposed the use of certain international rules, among which is the contracting of FIDIC 1999 Conditions of Contract. Accordingly, the goal of this paper is contribution to understanding of the matter from the aspect of the rules of Serbian legislation, with special focus on the implementation of the rules of FIDIC Conditions of Contract when the applicable law of contract is the law of the Republic of Serbia. Since the penalty in construction contracts enter the corpus of the most important instruments for provision of contract execution, the paper deals with the issue of this institute. Also, the paper considers the issues pertinent to the creation, types, legal nature and implementation of FIDIC Conditions of Contract. Within this framework, the paper particularly deals with penalty and analysis of the rules prescribed by FIDIC Conditions of Contract when the applicable law of the contract is the law of the Republic of Serbia. Particular attention is given to the penalty for delay in fulfilment of contractual obligation, whereas significant contribution of this paper, apart from the analysis of the rules is an extensive analyses and comparison of international and domestic legal practice.

This is one in a series of professional papers published by Dragica Cukic, mostly in magazine "Pravni zivot". The magazine has been active since 1952, whereas the thematic editions were dedicated to December meetings of Kopaonik School of Natural Law. In her previous papers, she dealt with the issues she deemed particularly important for all of us in the field of commerce, which belong to the fields of law that she deals with through her professional practice (rules on assumption of debt, similarities and differences of related company and a part of company, contract on concession, impossibility of fulfilment, contractual liability, termination of contract due to impossibility of fulfilment, arbitration agreement, deadline extension as per FIDIC Conditions of Contract, confession and execution of arbitration and court decisions, pledging of shares etc.).

This year's counselling of Kopaonik School of Natural Law will be held on 22nd December 2021 in the form of online international scientific conference. This counselling has a long tradition and represents the biggest legal conference of this type in the region and one of the most famous ones in Europe and gathers a large number of jurists and experts from Serbia and other countries.

JSC URBANIZAM I ARHITEKTURA

NEW MANAGEMENT OF THE COMPANY

From September the first of this year, JSC Urbanizam i arhitektura has new management led by two ladies: Gorana Cankovic, Director of the company and Marija Iberajter, Technical Director of the company.

We spoke with our colleagues of their beginnings and work experiences acquired in Energoprojekt, of the business situation and results of the company, of the ongoing projects, of their views of the potentials and possibilities for the development of the company and business objectives in the subsequent period. Their answers and views on these themes are conveyed in the interviews below.

Interview GORANA CANKOVIC, DIRECTOR OF JSC URBANIZAM I ARHITEKTURA

I BELIEVE THE TEAM OF URBANIZAM I ARHITEKTURA IS STILL "THE WINNING TEAM"

My career began only eight days after graduation, in design bureau of JSC Urbanizam i arhitektura. In Energoprojekt, I encountered a pleasant work environment, characterised by team spirit and enthusiasm and I feel a sense of belonging to Energoprojekt Group, which binds an individual to professionalism and responsibility. My then director, Marjana Strugar, spent most of her career in Energoprojekt leading the urban planning team and I often heard in the bureau legendary stories and anecdotes from the "Little Energo" as it was popularly called. At that time, I could not imagine that since the end of 2004 to this day, I would also be a part of the big Energoprojekt team. Of course, throughout my career, I faced various disapprovals and challenges, but even in the hardest moments, I saw no other way but to perform each task the best way I can. Today, I realise that all the challenges were only a preparation for the job I am doing now.

What are the most significant projects you worked on and what was your position on these projects?

Apart from architectural design, my specialty is urban planning, in particular, location development from the beginning, from an "empty plot". This activity implies a multi-disciplinary approach which, apart from technical knowledge, requires command of and harmonization with legal and economic conditionality. The most significant projects I participated in as the manager of urban planning projects are today capital achievements of the last decade and Belgrade highlights. These are: Belgrade Tower in the area of Belgrade Waterfront complex, Chinese Cultural Centre in Novi Beograd, Ada Mall Shopping Centre. I also managed urban planning project of construction of commercial-residential complex in block 26, and I eagerly await commencement of construction of this central, most important block in Novi Beograd, which will be developed along the route Palace of Serbia – Belgrade Arena.

While working in JSC EP Holding, apart from analysis and presentation of Energoprojekt locations, I dealt with the development of the location of Block 26 in Novi Beograd and location of Block 24 in Bezanijska kosa – residential complex under construction.

You have been at the position of the director of the company since September. Since you were the Chairperson of the Board of Directors of the company in the previous period, you are well acquainted with its business operations. What is your assessment of the current business situation and the results realised in 2021?

In 2020, the company faced a business crisis, primarily caused by COVID-19 pandemic, and the most severe consequences thereof were felt in 2021. In spite of unfavourable circumstances of business operations, the company survived and realised minimum profit and, with saving and reorganization measures taken, its business operations were stabilized in October. I can confidently say that we expect stable business operations and progress in 2022, since new projects were acquired and contracts signed in the fourth quarter of 2021.

What are the projects that JSC Urbanizam i arhitektura is currently engaged in? Do you expect any acquisitions of new significant projects in the home country or abroad in the near future?

We are currently working on preparation of the designs on the projects where the investor is the Republic of Serbia, i.e. relevant ministries, for example: prisons, courts, hospitals, sports facilities etc.. In the future, we also expect continuation of successful business cooperation and contracting of new projects of significance for the Republic and the city of Belgrade. Energoprojekt Urbanizam i arhitektura has always been engaged in Energoprojekt's development projects, so we expect that "Block 24" project will be successfully completed next year and that a new such project will commence.

What is the current situation in the field of personnel policy and what is the current level of engagement of your capacities? Is the personnel structure in line with the demands of the development of key activities of the company?

The fact is that in 2021, many valuable staff members left the company, but experienced engineers still remained with teams of young, energetic colleagues gathered around them. Since we lacked MEP and structural engineers which are currently most sought-after on the market, we hired new colleagues in November. We are currently working at full capacity and, since my goal is to acquire new projects, we can expect the number of employees to increase in accordance with the demands and the scope of work. I believe the team of Energoprojekt Urbanizam i arhitektura is still the "winning team".

GORANA CANKOVIC

Master of Science in Architectural Engineering (2002, Faculty of Technical Sciences in Novi Sad). She is a member of the Serbian Chamber of Engineers, a licensed engineer and urban planner (2004) and expert witness for the field of architecture (2010). In period 2002-2017, she worked in JSC Urbanizam i arhitektura, where, after several positions she reached the position of the Principal Urban Planner. In period 2017-2021, she managed the Department of Location Development within Real Estate Division of JSC Holding. Since 2019, she was a member of the Board of directors of JSC Industrija and then the Chairperson of the Board of JSC Urbanizam i arhitektura.

Where do you see Urbanizam i arhitektura in the subsequent period? Where do you see the space for further progress and development? What are the goals of the company in the next year?

In the subsequent period, Urbanizam i arhitektura has to retain the reputation of a designer of undisputable quality, with engineers who perform their tasks efficiently and responsibly. To retain the reputation of Energoprojekt which has been at the top of construction industry for years, is a big task, but also an important goal, especially at the times when the market is dominated by small bureaus, which, with their work method, represent unfair competition.

The company can make progress through committed work, successful handling of with new work tasks and continuous improvement. The goal of the company in the subsequent period is to adjust to the market and new business trends and, at the same time, to retain quality and reliability.

In the end, what would you say to the employees of your company?

Never fear the size of a task before you, don't look for excuses, but use your own creativity and willpower to focus on the goal – success will follow. Think how lucky we are to get to create and leave behind us architectural works that will mark an age and long serve the future generations.

Interview MARIJA IBRAJTER, TECHNICAL DIRECTOR OF JSC URBANIZAM I ARHITEKTURA

WE HAVE A SERIES OF NEW SIGNIFICANT AND CHALLENGING PROJECTS IN THE FOLLOWING YEAR, WHERE WE WISH TO USE THE FULL POTENTIAL OF OUR EXPERIENCED TEAMS AND RENDER SERVICES OF GOOD QUALITY AS A COMPANY ON AN INCREASINGLY DEMANDING MARKET

I would connect most of my professional career to this day with Energoprojekt. Right after graduation, in 2004, I started working in Energoprojekt Urbanizam i arhitektura, in the bureau with architect Milica Velanac who gave me freedom and trusted me from the first day, and, in some ways, shaped and directed my professional development.

I have been working in Energoprojekt for 15 years. Even when I left the comfort zone in pursuit of new challenges, left Energoprojekt, it turned out that the biggest challenges are the ones awaiting me in the first company of my employment. I have encountered and am still encountering the most significant and the biggest projects in Energoprojekt and this company always offers new opportunities to work in some new and interesting work tasks and obligations. The most important thing Energoprojekt offers is the possibility to acquire an extensive experience, since through development and work in different teams, through cooperation with the legends of our company and architecture, with different disciplines from the wide array of our services, as well as through continuous improvement, I have the impression that I am improving and learning something new every day.

What are the most significant projects you worked on and what was your position on these projects?

Among the projects I participated in, I would single out as the most significant one the residential complex in Block 24 in Bezanijska kosa, where I authored the concept design, as well as the residential complex serving the purpose of health tourism in Igalo, in Montenegro, where I was the design author and senior designer.

In the last four years, I was engaged in Energoprojekt Holding in the Department of Location Development, where I participated in preparation of several urban designs, concept designs, spatial and program checks and analyses for different locations. I would single out the planned commercial-residential building in Block 26, in Novi Beograd, where I was a part of project management team.

Since you recently took over the position of the Technical Director of the company, kindly tell us what are the most significant projects Urbanizam i arhitektura is currently engaged in. Are you satisfied with the turnover?

The most significant project we are currently participating in as a company is, without a doubt, Belgrade Tower, new symbol of the capital and central building of Belgrade Waterfront complex which has been established through government resolution as a project of particular significance for the Republic of Serbia and the city of Belgrade. Residential buildings in Block 24 in Bezanijska kosa are also significant and their construction commenced this year. As a development project, this is a project of particular significance for our company and several companies within Energoprojekt Group participate in its implementation. Continuous cooperation with the Ministry of Justice and design of several prisons throughout Serbia, the project of the judicial building in Krusevac, as well as cooperation with the Ministry of Construction, Transport and Infrastructure – the project of the National Academy for Ship Crew Training, are also the projects that will, owing to their successful implementation, be the guarantee of our future cooperation with the authorities and institutions of the Republic of Serbia on similar projects.

What are the goals you as the new Technical Director of Urbanizam i arhitektura marked as the most significant for the next year?

The most important goal is certainly successful implementation and completion of ongoing projects within the agreed periods, as well as finding, contracting and successfully initiating new projects, with maximum engagement of the teams. A series of new, significant and challenging projects await us in 2022, where we wish to use the full potential of our experienced teams and render services of good quality as a company on an increasingly demanding market.

Where do you see the potential for further progress and development within your authorities in Energoprojekt Urbanizam i arhitektura?

MARIJA IBRAJTER

Master of Science in Architectural Engineering (Faculty of Architecture, University of Belgrade, 2004). She is a member of the Serbian Chamber of Engineers, a licensed engineer (2006).

Just what I mentioned in the last sentence – I wish for us to use all of our potentials, all of our valuable experience, all design branches covered and unified – primarily through better organization and more efficient management within the Company, so that we could show ourselves on the market and prove ourselves in full capacity, quality and potential, since I rightfully believe that we can be competitive in the contemporary market competition.

What do you expect from the employees of the company and what would you say to them?

Order, work, discipline and results, my class teacher in primary school would say. I'm just kidding, but many a true word is spoken in jest. Of course, apart from the above expectations, team spirit and joint ambition also constitute an important prerequisites and a driving force for achieving goals. I wish for us to work, progress, win, and, above all, enjoy our beautiful profession – because, when you find pleasure and satisfaction in the work you do – good results will follow.

CONVERSATION WITH THE DESIGNERS OF HIDOINZENJERING

ENERGOPROJEKT HIDORINZENJERING – A PLACE WHERE YOU CAN ACQUIRE VAST EXPERIENCE, PROFESSIONAL KNOWLEDGE AND BEAUTIFUL MEMORIES

The pleasure of working on big and complex projects of significance for the society, the possibility of professional advancement both technically and organizationally, work environment supportive and encouraging of knowledge, commitment, perseverance and persistence in implementation of the set tasks, as well as creativity and desire for improvement, are only some of the reasons viewed by the designers of various disciplines as specific and for them, decisive for working in Energoprojekt Hidroinzenjering. There are also the possibility of meeting different cultures, multidisciplinary approach to work, good work environment and openness of the older colleagues to exchange of knowledge.

In November, we spoke with three engineers with significant experience in design and management of projects of hydropower plants, dams, water supply systems and other water management structures. We hereby convey their experiences, thoughts and messages to younger colleagues.

MILOS IVETIC, Master Engineer of Civil Engineering

I graduated in 2011 from the Faculty of Civil Engineering in Belgrade, Department of Hydraulic Engineering and Water and Environmental Engineering. A year later, I acquired the title of Master of Civil Engineering at the same faculty. I started working at Energoprojekt Hidroinzenjering in January 2013. Through the work at the Department of Hydropower, Water Management and Land Reclamation Systems, I went through s training period and engineering practice and currently I am occupying the position of a Senior Engineer. The basis of my work is design of hydraulic structures such as large dams, hydropower plants, irrigation systems and many other water management structures and systems. Apart from design, I also deal with management of the work on preparation of technical documentation in the field of hydraulic engineering and water management.

How did your career begin?

In 2012, upon recommendation of my professor Dr Tina Dasic, I came to EP Hidroinzenjering for professional practice which formed an integral part of master studies. In the period of 4 months of practice, I participated in development of some projects and formed my master paper connected with the projects we worked on at the time.

What project that you worked on would you single out as the most significant one?

I would like to single out the Study of Provision of Water Resources in Northern Algeria. In its concept, this project is unique in my career. It is a special type of water management study prepared for the territory of northern Algeria covering almost 300,000 km2 with more than 36,000,000 inhabitants. The study defines optimum management of the work of the entire regional hydraulic engineering system for the use of surface water which includes more than 100 large dams and a significant number of other structures. Within this project, I was involved in almost all fields of water management, which is an extensive experience that considerably helped me in my career. Apart from professional knowledge, during the visits to Algeria and through work organization I got to know some cities, many Algerian colleagues, their customs and the lifestyle and manner of conducting business in Algeria.

What work experiences were the most significant ones for the development of your career?

Working on all big projects, especially in the capacity of principal designer, that is, project manager. When you are appointed as the manager of a project, the biggest part of responsibility for this project is on you and, in order to live up to the expectations, you have to be well acquainted with all the disciplines and efficiently cooperate with all project participants. Apart from that, such position requires intensive communication with the representatives of client, contractor, equipment suppliers, public utilities and many government institutions, as well as knowledge of legal regulations in the field of construction, water management, ecology and related fields.

Which colleague had the biggest influence on you in terms of professional and personal development?

There are definitely several colleagues that helped me a great deal throughout my professional development. Many of them with their views and understanding showed personal support. If I have to single out one colleague, it would be Radmilo Glisic, Principal Engineer of the Department of Hydropower, Water Management and Land Reclamation Systems. This man with his great knowledge, experience and energy is available to all young engineers of our profession in solving all kinds of requirements they may face.

What, in your opinion, makes Hidroinzenjering stand out in relation to other employers?

These days, it is very difficult to maintain the quality of a product at a high level and remain well positioned in the market competition where quality is not a decisive factor. EP Hidroinzenjering is a company that, despite the market conditions, manages to retain the quality of its projects and the work principles that generations of engineers were trained on. Working in this company enables acquisition of the knowledge you cannot acquire at other places. Many projects that EP Hidroinzenjering works on are grand and significant for the entire society and participation in such projects can bring particular satisfaction.

What are your professional goals in the subsequent period?

I am planning to continue to work and progress within EP Hidroinzenjering. I would personally love for us to build together an even bigger company that would expand its influence abroad and this company definitely has the knowledge and human resources necessary to achieve such an undertaking.

What do you do in your free time, do you have any hobbies?

Apart from my demanding professional engagement, I try not to neglect the activities in my private life since I believe that these two factors have to be balanced and improve one another. Apart from active social life, physical recreation is what relaxes me and helps me stay fit. I very much enjoy travelling and being around close people.

What would you say to your younger colleagues?

To the colleagues who have just completed their studies and are looking for a job, I would say that Energoprojekt Hidoinzenjering is a company where you are not left to your own devices, but a place where you can always get advice and help in solving the problems you are facing from some of the senior colleagues. EP Hidorinzenjering is a place where you can acquire extensive experience, professional knowledge and beautiful memories that working with the people of this company brings. General message to all young colleagues is to try to clearly define their goals and also that persistence and hard work always pay off.

TAMARA SUMAR, Master of Science in Civil Engineering

Department of Structural Engineering, began her career in July of 2005 in Hidroinzenjering. She deals with design of structures within the systems of dams, hydropower plants and other engineering structures, as well as with project management and coordination of activities within the department she works at.

Tamara, how did your career begin?

I first arrived to Hidroinzenjering as a student, to obligatory professional practice after the fourth year of studies. Extremely good cooperation with colleagues I had in the course of that one month was the decisive factor for me to start working here after graduation.

What project that you worked on would you single out as the most significant one?

Each of the projects I worked on was significant for me in a way, but I would single out Detailed Design of the Annex of Machine Building at HPP Zvornik and reconstruction of the generator. That was the first project I was the manager of and, at the same time, I was senior structural designer. At that time, I acquainted myself with other aspects of working on the projects that include much more than pure design.

What work experiences were the most significant ones for the development of your career?

In general, I could say it is the work on large multidisciplinary projects. Each of these projects had its specific technical challenges. Participation and contribution to solving these challenges brought me new knowledge and development of new skills.

Which colleague had the biggest influence on you in terms of professional and personal development?

Without a doubt, each of the colleagues I worked with influenced me in their own unique way, but if I would have to single out one person, it would definitely be Aleksandra Tosic. When it comes to the profession, Aleksandra always held on to the highest standards of work quality. She followed the professional development and training of younger colleagues that she had a chance to work with and would always invest maximum effort to train us all well. She would always be there for us if we needed help, advice or support.

What, in your opinion, makes Hidroinzenjering stand out in relation to other employers?

Hidroinzenjering is specific in that it offers to its employees the possibility to work on design of a wide range of engineering structures and in solving of different engineering problems. There are no two identical projects and something new can be experienced and learned on every new project. Even after more than 15 years of experience, working on such projects is still interesting and challenging. Apart from that, subjectively speaking, I believe we have a really nice collective made of people of positive spirit and great enthusiasm and I am most glad to be a part of it.

What are your professional goals in the subsequent period?

Above all, I strive to continue working on interesting and challenging projects with – as has been the case so far – experienced people who share the enthusiasm, as well as with younger colleagues who are only just discovering that enthusiasm.

What do you do in your free time, do you have any hobbies?

I try to spend as much as I can of my free time with my family and friends who definitely make life more diverse and complete.

What would you say to your younger colleagues?

I certainly think it best for the colleagues to feel free to share their thoughts, opinions and expectations related to work, profession, society, environment; when they are free to communicate the ides they have. Creativity is always welcome.

TODORA LAZIC, Master of Science in Electrical Engineering

Born and raised in Belgrade, on basketball and volleyball terrains and swimming pools of Kosutnjak. After graduation from 8th Belgrade grammar school and British School of English in Great Britain, she graduated at the Faculty of Electrical Engineering in Belgrade in 2003. In 2005, she started working at Hidroinzenjering on design of electrical equipment on hydropower plants, dams and ship locks.

This year, I am honoured with the opportunity presented to me and the trust that the management of Hidroinzenjering showed me appointing me the Head of Department of Electrical and Mechanical Engineering.

Todora, how did your career begin?

My career began in a British-Canadian company KES Engineering ltd., while I was still a student. The company worked on design, manufacture and installation of electrical and energy components of the diagnostics and monitoring system of partial discharge on the equipment of hydroelectric generators, electric motors and transformers. After several years of cooperation with the above company, I transferred to Hidroinzenenjering with the aim of expanding my knowledge in the field of hydropower, where I have remained to this day.

What project that you worked on would you single out as the most significant one?

From the start at Hidroinzenjering, I was engaged in serious team work on preparation of construction documentation and then on as-built drawings on reconstruction of electrical and mechanical equipment 6 (six) hydroelectric generators of one of the largest hydropower plants in Europe - HPP Djerdap 1 in cooperation with the colleagues from Russian company "Silovye mashini", which was the General Contractor.

In parallel with Djerdap project, I participate in a team of colleagues from Hidroinzenjering in preparation of tender documentation for reconstruction of many hydropower plants (HPP Zvornik, HPP Bajina Basta, HPP Perucica, HPP Piva) and of previous documentation for reconstruction of Vlasina HPPs, HPP Potpec, HPP Kokin Brod etc.

What work experiences were the most significant ones for the development of your career?

The most significant experience, at the position of principal designer is preparation of design development phase, construction documentation and as-built drawings for the reconstruction of ship lock at HPP Djerdap 1.

This summer, after completed reconstruction, ship lock at HPP Djerdap 1 was successfully commissioned, a month before the deadline, to the satisfaction of the Client (Ministry of Construction, Transport and Infrastructure), Contractor (consortium: DSD-Noell_GMBH, Feromont, Elektromontaza) and Project User (Public Utility "Elektroprivreda Srbije" (Electric Power Industry of Serbia).

I would also like to single out preparation of design development phase for obtainment of building permit for the reconstruction of ship lock of HPP Djerdap 2, as well as the current project of preparation of technical documentation for improvement of conditions for ship guiding within Tisa dam for the Ministry of Construction, Transport and Infrastructure.

Which colleague had the biggest influence on you in terms of professional and personal development?

I have been developing my professional path in cooperation with the persons I myself choose for support and encouragement. Those are primarily the esteemed colleagues of all disciplines from our company, as well as the colleagues from the teams of the client, contractor and institutes of electrical engineering in the home country

and abroad, that I have developing business and friendly relationships with over the years. Of colleagues from design team, I would like to point out "my dear colleague and friend Dr. Watson", my husband, Nenad Lazic, with whom I have been successfully building career of a well-known team.

I am thankful to Bogdan Uzelac, former Director of Project Implementation and Monitoring of EP Hidroinzenjering on his selfless support and the knowledge he passed on.

What, in your opinion, makes Hidroinzenjering stand out in relation to other employers?

In Grunf's words, "we saw the future and learned how it does not work", there is nothing else to do but to find a way to grow even stronger, build ourselves up and become unparalleled by developing all our powers and potentials. EP Hidroinzenjering is, first of all, a democratic joint stock company where each individual fully understands they are a pillar of the company. Through personal ambitions, from tea lady to director, all together, as a team, we have been diligently working for years on realisation of professional goals with subtlety, directness and optimistic attitude, we create and walk on the roads to success.

What are your professional goals in the subsequent period?

First of all, I wish to explain that the type of design we do at Hidroinzenjering is an extremely specific discipline and that ours is a shortage profession highly sought-after on global and domestic market. Following the global trends, our experienced engineers are increasingly oriented towards new accomplishments. Considering the success I achieved at the international conference on power machines IRIS - Power Machines Conference in Los Angeles in 2018 by presenting a paper titled: Rehabilitation and modernization of HPP Djerdap 1, thus introducing Energoprojekt Hidroinzenjering as a renowned Serbian company in the field of hydropower, I wish for the experience of such a success to repeat itself, not only for me, but also for other colleagues from my team participating in highly demanding, strategic projects.

What do you do in your free time, do you have any hobbies?

Whenever I have a chance, I drive bicycle with my old crew, my husband and children, we are very sports-oriented, we walk a lot and look forward to winter and summer breaks which we spend with friends.

Finally, what would you say to your younger colleagues?

Order, work and discipline are the basis of progress and the key to professional success, with famous quote of the Number One from Alan Ford comic: ""If you want to win you must not lose!"

Energoprojekt spirit

JSC ENTEL

ENERGOPROJEKT ENTEL COMPANY CONTINUES THE TRADITION OF AWARDING THE CHILDREN OF ITS EMPLOYEES

As a socially responsible company, Entel has been conducting through its business operations the activities that contribute to the improvement of the wellbeing of its employees and their families. Through support of different initiatives directed towards promotion of true values, Entel strives to encourage the employees and their families to actively work on their own development and achieve the best results in their chosen fields of activity.

In 2008, an initiative was launched to award the children of the employees with advanced achievement level in primary and secondary education, envisaged as the support to young people in realisation of academic excellence and intellectual development.

The award criteria were set to be strict, but obviously achievable for young and ambitious people. The defined condition for the primary school students implied realisation of advanced achievement level and grade point average of 5.00, whereas the condition for secondary school students is advanced achievement level and grade point average above 4.50.

Last year, for the first time, the initiative included the children of the employees of Entel companies in Qatar, Dubai and Abu Dhabi with the criteria adjusted to the education systems in those countries, which was necessary since the children are being educated at different international schools based on the curriculums of different countries.

This year, the award was received in Serbia by 14 primary school students and 11 secondary school students. At the gathering organized on July 23rd at Energoprojekt office building, the director of the company, Mladen Simovic, saluted the diligent students and wished them success in their future performance. After handing out of well-deserved awards, the director of Entel invited the students who failed to meet the award criteria this year, to join the group of awarded students next year.

HUMANITY OF OUR EMPLOYEES IN THE TIME OF PANDEMIC

ENERGOPROJEKT REALISED TWO VOLUNTARY BLOOD DONATION INITIATIVES

In 2021, in the specific conditions of COVID-19 pandemic, with taking precautionary and safety measures, Energoprojekt in cooperation with the Blood Transfusion Institute of Serbia successfully realised two blood donation initiatives in January and May of 2021.

21 potential donors responded to the first regular blood donation initiative and 19 persons donated blood, 2 persons were rejected for medical reasons. 27 potential donors responded to the second voluntary blood donation in May. 25 persons donated blood, out of which 3 persons were first-time donors. Due to worsening of the epidemiological situation in Serbia, the third initiative traditionally planned for September was cancelled. Despite the difficult circumstances, at the time when all the institutions in the county recorded decrease in the response of voluntary blood donors, we may assume that the employees of Energoprojekt showed they are ready to help the ones in need in difficult times.

Let us be reminded: Blood donor can be every 18-65-year-old healthy individual who would in no way be jeopardised by the donation and whose blood would be safe to receive as ascertained through medical examination of the donor and checking of their haemoglobin blood level. Men can donate blood every 3 months, women every 4 months. According to the doctors, it is safe to be a donor even at the time of corona, since the virus is not transmitted through blood.

JSC ENTEL

RAFTING FOR THE EMPLOYEES

Entel continues to promote employee socialization outside the working hours, for the purpose of raising team spirit and a sense of togetherness. One of this year's initiatives pertained to the rafting adventure down the Tara and Drina river course which was met with great reception reflected in signing up of 120 passengers, employees and members of their families alike.

The challenge was to organize a trip outside the boundaries of Serbia in the conditions of the pandemic which could bring about organizational difficulties and unpleasant situations. However, with audacity, optimism and faith in one more beautiful gathering of colleagues which was about to begin, the adventure started on August 7th after midnight, with a night ride through Serbia and Bosnia and Herzegovina. Morning arrival to "Mata" camp on the bank of Drina River gave the passengers a much needed break after a long tiring journey.

Around 10 o'clock, soon after settling in bungalows and refreshing, preparations for the rafting began. Going to the rafts, borrowing special equipment, going through short training on rafting and the manner of reacting and behaving, with necessary seriousness, but also with a dose of humour, made the adrenalin gradually increase in expectation of the descent.

Twenty-five-kilometre long descent down the unique canyons of Tara River and partly down the canyon of Drina River, left all the colleagues breathless. The descent lasted approximately 3 hours, with 30-minute break in a coffee shop on the bank of Tara River which proved to be very useful since rowing down rapid river courses was not an easy task for the colleagues in charge of operating the boats. In inflatable boats, each with twelve members of Entel crew hungry for adventure, the excitement was guaranteed. Even though rowing was physically challenging, surreal scenery with steep-sided bare hills descending into crystal-clear turquoise water, the silence of the surroundings, the sound of the rapids and adrenaline-pumping experience of the plunge of the inflatable boats made the exhaustion go unnoticed. It turned out that the descent was not merely recreational, since some of the teams exhibited competitive tendencies, wholeheartedly striving to reach the destination first. This involved both sportsmanlike and unsportsmanlike conduct, crossing a solid line, accompanied with laughter and bathing in cold water, which contributed to an unforgettable experience.

If we take into account that the air temperature during rafting was pleasant 28 degrees, while the water temperature was much lower, around 12 degrees, with a sunny day and a fantastic mood created by all the participants, it is clear why this event remained in the memory of the colleagues as one of a kind. Rafters refreshed themselves during the descent drinking water directly from the Tara River, reminding everyone that Tara is one of the few rivers in the world with water so clean that a thing like is still possible. For all of these reasons and many other particularities that marked Entel's rafting, as well as the fact that, for a large majority of colleagues, this was the first time to participate in an adventure of this kind, we are sure it will be long-remembered and most likely repeated.

The free time in the camp was spent socializing, engaging in sports activities, exploring the surroundings and walking by the river. Entel took this opportunity to answer the challenge globally known as "Jerusalema dance challenge", a life-affirming dance that spread the dancing mania as a means of fighting against the current pandemic.

As always after such activities where colleagues have the chance to get to know each other in a relaxed atmosphere, without work activities, stress caused by the pressure of deadlines and other obligations characteristic of the daily work in Entel, the most frequently asked question is – Where are we going next time?

Entel's rafting team

Tara River canyon of stunning natural beauty

JSC ENTEL

PARTICIPATION AT BELGRADE BUSINESS RUN 2021

Serbia Business Run event is a series of running events organized with the aim of gathering and connecting the employees of the companies operating on the territory of the Republic of Serbia. The races traditionally take places in four cities: Novi Sad, Nis, Subotica and Belgrade.

Business race in Belgrade, so-called Belgrade Business Run, represents the biggest annual corporate sporting and team building event in the Serbian capital. This year, Belgrade Business Run was organized on November 22nd, gathering more than 6,000 employees from more than 500 companies.

Due to corona virus pandemic which has, for two seasons already, been considerably affecting the organization of the events with a large number of participants, this year's competition was accompanied by taking precautionary measures aimed at prevention of potential spreading of the virus. The contestants left the starting line sequentially, in groups of 500 participants at every 20 minutes, which, apart from its primary goal, reduced congestion of the running track, thus enabling faster running of the participants due to the reduced need for frequent overtaking.

At this year's competition, Entel participated with slogan "One company – one team". Third year in a row, Entel's employees responded with great enthusiasm to the invitation to participate, ready to run through a 5 km-long track as fast as possible. This year's race was organized at "Belgarde Waterfront" location, at luxurious Sava promenade, allowing the less prepared contestants to combine running and walking and facilitating the attempt of the fitter ones to achieve a personal or a company record.

At this year's competition, Entel participated with 38 contestants, which is the biggest number of participants so far and indicates that the above sporting initiative has an increasing number of followers within the company. This year's goal of Entel's team was to gather a larger number of colleagues and surpass the results achieved last year.

Part of Entel's team at Belgrade Business Run 2021

In man's category, the top-ranked was Ognjen Ivanovic, Deputy Head of the Department of Architectural and Civil Engineering of Entel, who completed the race in only 22:17 minutes breaking his personal record. The second-ranked Branko Kostic, also from the Department of Architectural and Civil Engineering completed the race in 23:19, whereas the third-ranked was our young colleague Nemanja Ivanovic from the Department of Technology and Mechanical Engineering, running his first longer race which he completed in 25:38 minutes.

In women's category, the fastest lady was Danila Starcevic from Entel's Department of Economic, Environmental and Electric Power Studies, with excellent time of 28:05 minutes, while the second and third-ranked are our colleagues from the Department of Architectural and Civil Engineering, Antonija Fantovski and Marija Savic, with similar times of 29:17 and 29:20 minutes.

Apart from providing all the contestants with suitable sports equipment with company marks, Entel handed out sports awards to the most successful three contestants, wishing to show support to the sporting achievements and efforts of their employees.

Big support in organization of the event was shown by the families of the contestants, primarily the children of the employees who, once again, had the chance to assure themselves of the importance of a healthy lifestyle and collective sporting spirit.

Entel invites all the colleagues to respond to the invitation to participate next year as well, start preparing on time and get as fit as they can for this sporting event. More importantly, they remind their employees of the well-known saying we often forget "A healthy mind in a healthy body". Let's live a healthy life!

Together with association "Cepom do osmeha" (Bottle Cap for a Smile)

LET'S COLLECT TOGETHER

In 2021, in humanitarian and environmental initiative "Let's Collect Together", Energoprojekt employees collected 350 kg of bottle caps which will be timely sent to association "Cepom do osmeha" (Bottle Cap for a Smile).

This association we started cooperating with in 2016, organizes the purchase of necessary wheelchairs for children with disabilities, with the resources secured through the sale of plastic bottle caps to recycling centres.

LUXURIOUS PENTHOUSE AND DUPLEX APARTMENTS

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