

The investment in the revitalization of HPP "Bajina Bašta" is heavily justified if you take into account that the building of a new hydropower plant of 52 MW costs more than €100 million. - After the revitalization, the capacity of HPP "Zvornik" will be increased by 30 percent.

The four-year long revitalization of the HPP "Bajina Bašta" will be completed on 14<sup>th</sup> September, when the fourth modernized and renewed unit should be back in the network of "Electric Power Industry of Serbia" - said in an interview for the newspaper "kWh" Mr. Mijodrag Čitaković, Director of PD "Drina - Lim" HPPs.

The revitalization of HPP "Bajina Bašta" is an example of successfully and timely completed tasks, and our source points out that all works were already completed on 14<sup>th</sup> August when the fourth unit entered the one-month trial period.

What are the current revitalization activities?

During the 30-day trial period, the fourth unit will be working in all modes - from minimum to maximum power. We also installed a spare transformer on the third unit, replacing the old due to the last year's damage, while a new transformer, manufactured in the factory "SGB" of Regensburg, was delivered to us recently. To ensure safe delivery of the 121 ton-weighting transformer to the construction site, the transport required hiring of a special vehicle. The transformer is going to be mounted on the third unit on 12<sup>th</sup> September. Otherwise, the third unit has passed the trial operation and almost the guarantee tests for the generator and the turbine, so the yearlong trial operation of the transformer is next on the schedule.

How have the three revitalized units performed in the operation so far?

All that we have checked meet the technical requirements of the tender documents. The power is even higher than anticipated, and instead of the planned 103 MW for each unit, we have achieved 105 MW. Thus, starting from 14<sup>th</sup> September we will have 52 megawatts more than we had before revitalization.

Was it worth investing in the modernization of HPP "Bajina Bašta"?

The investment in the revitalization of HPP "Bajina Bašta" is heavily justified if you take into account that the building of a new hydropower plant of 52 MW costs more than €100 million. We should also have in mind the reduction in maintenance costs over the next 10 years and the 30 years long life extension of the plant. The revitalization ensures much better characteristics of power units, contributes to their power and production output. Thus, we expect an increase in annual production of about 70 million kWh, depending on hydrology. It is important to note that after 14<sup>th</sup> September, the fourth unit enters the warranty period, so that in September of 2014 we shall have all guarantee tests and appropriate checks completed, based on which all the indicators of the performed renewal of HPP "Bajina Bašta" shall be verified

Apart from the increased power, production increase and the life extension, are there any

other gains from the revitalization?

The very important gain is in young professionals who have worked and completed this revitalization. Now they are ready for investments at this or a higher level, and are capable to cope with similar tasks. Today, there is a big problem with (lack of) professionals, because we need experienced ones who can make the right decisions and provide fast solutions, and we do have them in the company "Drina - Lim" HPPs. And, this is a good ground we should immediately start from, with launching new projects, one of which is the revitalization of HPP "Zvornik".

What is going on with the modernization?

In late July, a contract worth €63.7 million was signed with the contractor for the revitalization of HPP "Zvornik". It should be noted that the selected contractor "Voith Hydro", brings along an experience of the installation of two turbines. After the revitalization, the capacity of HPP "Zvornik" will be increased by 30 percent from the current 96 MW. The power of each of the four units will be increased by 7.4 MW, from 24 to 31.4 MW. After the modernization, "Zvornik" will get additional 29.6 MW, which is more than if we had installed the fifth unit. Now it is necessary to make all the preparations for the on-site works to start in 2015. It is needed to create a physical model of the unit or make a 10 or 12 times smaller turbine for the purpose of determining and verifying the characteristics of the new unit. It is necessary to test the power, the degree of efficiency, and then make a prototype. We started revitalization of HPP "Zvornik" a year ago. We dug the bed and improved the gradient, and the result was production increase. In addition, we built an annex on the right bank of the dam, which will be ready for installation of the equipment, including also control equipment, since the control room of the modernized plant will be there. If we manage to start the revitalization of the first unit in 2015, the entire job could be finished in 2019.

Are there any other plans?

In the meantime, we plan to launch a revitalization of HPP "Bistrica", which is among the oldest HPPs within the HPPs of "Drina - Lim". Currently, we are preparing technical documents, and considering the funds are significantly lower than that spent for the revitalization of the "Bajina Bašta" and "Zvornik", we hope to be soon in a position to commence the modernization of HPP "Bistrica".

What happens with reversible HPP "Bistrica"?

Construction Project of RHPP "Bistrica" is a very important priority for the state. Company "Drinsko-Limske HPPs" have finished their part of the job. We have prepared the documentation, and updated the documents that had been prepared earlier. The construction itself, should not last long, but for the preparation, works, starting from road construction and others, take a long time. Important for the construction of this capacity, is that the property affairs are not such a big problem, since there are not many houses and

inhabitants in this part, so it would not be a greater relocation. RHPP "Bistrica" would be a significant capacity, not only for Serbia, but also for the region, because it relates to energy for reserves and balancing. Right behind the RHPP "Bistrica" would be the lakes Kokin Brod and Uvac, so every single water drop could be used. The Energy industry should have the most of the profit, because the RHPP is the "pearl" that should be used.

It seems that the modernizations were the only solution for EPS, because at that moment it could not invest alone in the construction of the new power plants!

The best example is the revitalization of company "Bajina Basta". For the investment of 77 million euros, the loan of 30 million euros was taken, while 47 million euros were provided by EPS itself, and EPS has already paid its part. We have paid off even about 10 million euros of loan in this short period. We have got 52 new megawatts for 77 million euros. Considering that we expect reduced investment in maintenance, so the difference in money we plan to invest in some other in some other projects.

Do you already have some plans?

In HPP "Međuvršje" we have been working on a little unit of 600 kilowatts, with designed average annual capacity of 1.7 million kWh. The equipment is delivered, the connection to the pipeline is done, but we have a delay in public procurement for construction works. It is planned for all to be completed in September, but now it depends on the public procurement.

Are the public procurements in the company "Drinsko - Limske HPPs" also a big problem for the realization of activities?

Indeed they are. Many people do not understand that time is very important for the energy industry, as well as quality and safety. The lowest bid is to no purpose, if we do not have quality. We cannot afford to do the work that afterward will be questionable in terms of quality. However, if you are aware of what you want to have, there is no time for hesitation. We do everything precisely, control, and examine the suppliers of the equipment.

What are the six-month results?

In the six months of the financial year we record plus of 900 million dinars, and I hope to keep the positive trend to the end of this year. "Millstone" is foreign exchange rates differences, because any change of the rate brings new costs. Electricity production of the company "Drinsko - Limske HPPs" in the first six months has been never better for the last 10 years, although achieved by only three units of HPP "Bajina Basta" in operation. There were no unscheduled downtimes and outages, and the maintenance costs were lower. The rationalization of the company "Drinsko Limske HPPs" is not the job of yesterday, or the day before, because we are working on it for years.

We have created a base for the next projects

You say that people are very important. Does Company "Drinsko Limske HPPs" have staff for the future?

By the revitalization, we managed to qualify several young engineers, who are now capable of doing the biggest projects both at home and abroad. We have created a base for future projects. However, it is very important that these young people have the opportunity to learn. I know it well from my personal example, because from 1982 when I put the reversible HPP "Bajina Basta " into operation, to 1990, the four more power plants were started, which was an invaluable experience. We need a quality together with profession and knowledge. Nothing more is needed for success, and I try to prove that to employees in the company "Drinsko Limske HPPs " through my own example.

Sticking to the procedures

Safety and health at work have been raised to the highest level in the "Electric Power Industry of Serbia", but in spite of it, we have recently had a case of fatality in HPP "Uvac". Can the measures for observing the procedures be improved?

Yes, they can, because we have standards and procedures, but the human factor fails sometimes, and the lack of caution can lead to the worst consequences. Although employees are professional and well-focused, only one mistake can be fatal. That is why we work on improving procedures. The recent fatal injury made a great impact on the people. The procedures implementation has been tightened, unfortunately the lost human life cannot be compensated. Every day 500 people in the company "Drinsko Limske HPPs " ask themselves: where I am going, and if I have done it right. In the procedure is all clear, from A to Z, not a single detail has been overlooked, and it has only to be followed.

Source ; EPS Kwh