



In "Vlasina Hydroelectric Power Plants", the active overhaul activity is in progress. All production plants are firing on all cylinders, except for the PAP (pumped-storage power plant) "Lisina" where the overhaul was successfully completed on September, 15th. In addition to regular works as part of the scheduled, preventive maintenance of numerous production and ancillary equipment, the three-year cycle of unification and modernization of the equipment is being completed. Naturally, the maintenance of building structures is not neglected, primarily pipelines, tunnels and water collecting channels, through which the waters of Čemernik and other mountain heights are discharged into the Vlasina lake. And all this is happening over a wide area in the radius of more than 150 kilometers, which complicates and makes the efforts of workers of "HPP Vlasina" more expensive in order to ensure high operational readiness for the oldest unit of the company "HPP Đerdap" and one of the oldest HPP in Serbia, i.e. to ensure conditions for maximum and rational utilization of hydropower potential in the forthcoming winter period.

Successful in the first nine month period

Despite the dry summer, "HPPs Vlasina" achieved a good production in the first three quarters. In total, by the October 1st, they produced 271 million kWh of electricity, or 93.75 percent of the total plan for this year.

It is certain that after the completion of overhaul activities, from November 15th by the end of the year, they would produce the remaining 18 million kilowatt-hours. This prediction is firmly based on the fact that during the winter period and the increased operation of "HPP Vlasina", the lake elevation is 1207.54 meters (as of October 1st), i.e. the quantity of water in the Vlasina lake is sufficient to produce 64.5 million kWh of electricity. Good operation in the first nine months has been realized by PAP "Lisina", which fulfilled the plan with 75.3 percent for this year - despite the drought and small inlets in this accumulation.

For the journal "kWh", Mr. Zlatko Đukanovic, the director of "HPP Vlasina" elaborated on what had already been done, and what will have been completed by November 15th. By that date, the HPP "Vlasina" will be at the disposal of the Power System of EPS with all available installed capacity of 129 MW in four HPPs "Vrla" and 25 MW in the PAP "Lisina" which transfers part of Lisina water to the Vlasina reservoir, thus making "HPP Vlasina" able to produce twice the peak kilowatt-hours of electricity compared to the electricity which is spent by the pump units "Lisina" for water pumping out.

- This year the overhaul season has commenced on July 2nd on PAP "Lisina", and it will end on November 15th by completing rehabilitation activities on "Vrla 4" and regular overhaul works in the remaining three HPPs "Vrla" - Mr. Đukanović pointed out. - In the PAP "Lisina", significant works were done in 2.5 month period. Among other things, the following has been reconstructed: the high voltage line bay of 110KV No. 1213, the feeder

disconnecter 35KV has been replaced for the external assembly, the main switchgear 0,4KV and DC switchgear have been replaced and a new static excited motors from the Institute of electrical engineering "Nikola Tesla". A new control panel of both motors from the Institute "Mihajlo Pupin" has been installed, the cooling installation replaced and the audit of pumps done. Old cables are replaced with new, non-inflammable ones.

In short, a number of reconstructions and rehabilitations have been done, along with the installation of the new, modern equipment, primarily control equipment. With previously done construction works, whereby the leakage of water was repaired in the mechanical room below the Lisina pumped-storage, this plant will have a secure and reliable operation in the period to come. Thus in PAP "Lisina" most of rehabilitation has practically been done and only the pump units remain to be replaced in the future period. All other activities have been done successfully, through cooperation with experts from our renowned Institute "Nikola Tesla" and "Mihajlo Pupin", i.e. the engineers of Austrian company "Voith" who did the audit of the pump units.

Upon completing the works in PAP "Lisina", on September 15th, the cycle of modernization and unification of control and auxiliary equipment in the operation units of "HPP Vlasina": "Vrla 1", "Vrla 2", "Vrla 3" and "Vrla 4", has been continued with the prosperous cooperation with reputable local companies and Institutes and with the engagement of proven manufacturers of electrical equipment from abroad. The reconstruction of high voltage line bays and the replacement of obsolete and worn out equipment, mostly produced in the last century, were resumed. A plethora of orderly arranged electrical material is waiting for the sale in the tender procedure and to be dispatched for recycling, and thus "HPPs Vlasina" will give full contribution in ecology preservation and environmental protection.

In early October, at HPP "Vrla 4" everything was swarming with activities. The reconstruction of the switchgear of 35kV was in progress, installing completely new equipment. The works were executed by the company ABB, and new control panels manufactured in "Mihajlo Pupin", were installed on both generators, followed by installation of a new static excitation, electrical braking and DC switching, made by experts from "Nikola Tesla". Simultaneously, the works of reconstruction of control room was in progress, in which soon a new and modern and reliable equipment will be installed, while in mechanical room, the professionals of "HPP Vlasina" were carrying out regular works of the scheduled, preventive maintenance of hydro-mechanical equipment.

In HPP "Vrla 3", the commissioning of a new regulatory substation 31.5MVA is in progress. In addition to scheduled -common activities of preventive overhaul of both hydropower unit, the contracted reconstruction of the last, 12th high voltage line bay is planned along with installation of unified equipment, in the same way as on the other switchgears.

In HPP "Vrla 2", where the reconstruction and installation of unified new equipment were

done earlier on, mainly last year, and only vibromonitoring was installed this fall, with realization of ordinary works of preventive maintenance of the production and auxiliary equipment.

In HPP "Vrla 1" the works of modernization and unification of equipment were also performed earlier.

Out of a large number of reconstruction activities, as well as planned replacements, with the modernization and unification of the equipment, it remained only to do two replacements of static excitations and the reconstruction of four generator fields in HPP "Vrla 1". So the HPPs "Vlasina" will have had modernization successfully performed by the next year, accompanied by unification of equipment for all voltage levels in all five operation units, i.e. the first phase of rehabilitation. The replacement of hydropower units that remains to be done could commence in 2014, which will provide more power to this producer of expensive peak energy, i.e. better utilization of hydropower potential and safe and reliable operation for the next fifty years.

*Source Serbia Energy Magazine*