

Serbia: Thermal power units the backbone of transmission stability

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Two additional power units of TPPNT A and both units of TPP “Kostolac” will be in place for the secondary regulation. – Required better operative communication.

The experts in power generation and electric power system management, within public enterprises of „Electric Power Industry of Serbia“ and „Elektromreža Srbije“ have discussed the topical issues of complying the operation of production capacities with the transmission system requirements, in early April, i.e. issues of compliance of common producers’ operation dependency, on one side and transmission system operator on the other side. The reason for that was that the stability of both systems depends on these two compliances. To the best of our knowledge, since 2005, when transmission system management was separated from EPS and JP EMS formed, this is one of rare meeting of the most relevant experts in both companies for making the conditions for stable operation of the entire electric power system, and it was dedicated to discussion of exclusively technical issues. Beforehand, probably alike, but still different, was the preparation of separating transmission and distribution at 110 KV voltage, where the joint team of EPS and EMS worked two years ago.

The unit response slower than the power unit

The agenda of the meeting in April included the operation of thermal power units and hydro power units in the secondary regulation, the sustainability of the plans of tertiary backup power in the real time and high voltage issues, usually occurring on weekends in the morning, when the electricity consumption is low, i.e. when active energy flows are minimal. There was a special discussion on transmission lines breakdowns within the 400kV network that have influence on the operation of all elements of the transmission system and the operation of the turbo generators and hydro generators. The reconstruction plans of substations and switch gears which power plants are connected to, were also discussed.

As far as secondary regulation is concerned, the emphasis of the discussion was on capacity of the thermal power units for this function, since some hydro power plants have always been engaged in this operation mode. Last year, four units of TPPNT A were fitted for the operation in the secondary regulation of frequency and power exchange, as follows: Three, Four, Five, Six, and in the meeting it was told that their engagement in the secondary regulation had been very significant in time of high and low inflows on the HPP profiles, although the response had been slower than of the hydropower units, which is normal, they say, due to technology of transformation. Thus, it is necessary to keep at least one hydropower unit in the secondary regulation, besides thermal power units.

Related to the availability of HPP, it was asked that the rehabilitated power units A4 and A6 should be introduced in the HPP „Đerdap 1“, in the secondary regulation, and also to check

the readiness of the power units in HPP „Bistrica“ for this system service. It was asked also to estimate whether Pumped Storage HPP „Bajina Bašta“ was ready for operation in the secondary regulation, and afterwards to define the schedule of engagement of production units.

As for the thermal power units, it was said that the expert teams of EPS and EMS would continue to monitor and analyze their work and response in the secondary regulation, and of special importance is the fact that for this service two more units of the TPPNT A will be fitted in the following months, while in 2015 both units of TPP „Kostolac B“ could be counted on. TPPNT B units were not planned for this system service. Since the representatives of EPS said that EPS was not satisfied with prices of work in the secondary regulation, determined by the Energy Agency, it was agreed with AERS that price determination methodology should be improved and system services prices for HPP and TPP separated.

High voltage in the entire region

Although a special contract governs mutual obligations in the system services of the two public companies, an event occurred in March, this year that imposed a question of how to secure the planned reserve to be available in the real time.

Firstly, it was stated that smaller power backup rarely was a case, and then it was agreed to update timely work schedules and to strengthen the discipline in the communication at the operative level. This necessary even more because ENTSO-E will soon require submission of the work schedules on a 15- minute basis, which means that production capacity operation has to be planned accordingly.

Special attention was drawn to the proceeding with the project „Protis“ or to start another project in JP EPS in order to improve the production units operation monitoring, aimed at increasing the efficiency in management and to improve energy efficiency.

High voltage in the transmission grid, which are at the range limit of the established by the Rules of transmission system operation, occurred usually Sundays in the morning, and expected in the time of Easter and The First of May. Those high voltages reduce the operation stability and significantly limiting the operation of production capacities, and thus require full attention in order to prevent such states. It has also been said that high voltages occur at almost the same time in the power system in surrounding the countries as well, so in the entire region, and EMS has taken steps in that regard.

Serbian operator of the transmission system will put great effort, in cooperation with TSOs in the surrounding, to keep the electric power system of Serbia under control, but it was agreed that in case of need it could give orders to thermal power units of EPS to remove active power in order to absorb reactive power. This order would be registered as the endangerment of the transmission system operation in terms of balance mechanism. In this meeting it was agreed, after all, that block-transformers of thermal power units in TPPNT B1 and A4 should remain until after Easter in operation, even though the generators would be overhauled. During the First of May, the distribution of reactive power in energy system will be monitored and operative fitting state of transmission lines and power plants will be

agreed. There was also a discussion about the overhauls of thermal power units to come.