

Electricity production in serbian power gen facilities, thermal and hpp ration to be improved says EPS electricity production director

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For an analysis concerning the engagement and the cost-effectiveness of EPS production units, it is required a software-supported mathematical model that cannot be purchased as a finished product, but instead needs to be developed according to the own needs and circumstances - said Vera Stanojević, Director of the Department for electricity production of EPS.

Using thirty well composed charts presenting development and achievements in the production of EPS for the first 13 days of February this year in comparison to that achieved in the same period of February last year, Vera Stanojević, Director of the Department for the production of electricity and heat of EPS, illustrated in a meeting with the company production directors how the differences in outdoor temperatures and hydrology, as well as in electricity demand, made impact on the output and production costs. She pointed out that the total produced amount of electricity (1.536 billion kWh) was approximately the same as in the same period of last year, but that the structure of production and consumption reveals that the extreme cold in 2012 resulted in significantly increased costs.

The same output, but large differences

- What you can see here is the exact representation of data reflecting the achievements in a Siberian cold February of 2012, when the water energy value was at a record low, compared to that in this February being richer and warmer than average. This year, in the 13 days of February we produced only 14.1 million kWh more than the last year, and we had no problems with the transportation of coal that we had encountered last winter. Judging on

these data solely, one could be misled to conclude that our power plants somehow manage to achieve same results in the period with gusts of cold and average temperature of minus 9.5 C°, which was the last year's case, and in the conditions with average daily temperature of 4.3 C°, that we have now. Despite of what the numbers show, good question is what price as a trade-off business had to pay to achieve such output, and at what cost the consumer demand was settled, especially if the volume of consumption is in question – Ms. Stanojević said.

She said that the consumption for the first 13 days of February this year was 1.47 kWh, compared to the last year's 1.77 billion kWh, which means that for every hour of the February 2012 consumption it was necessary to employ additional generating unit of 962 MW compared to the respective consumption in 2013. Also cumulatively, this means that this year consumption needs were exceeded by 66.3 million kWh, while last year we lacked additional 246 million kWh to cover all the needs.

- From the aspect of engaging power plants capacities, it is important to note that in 13 days of this February run-of-river HPPs produced about 456 million kWh, or 158 million kWh above the production balance and about 184 million more than in the same time last year. Unlike from the run-of-river HPPs, which extremely extensive capacity utilization was enabled thanks to high inflows and good operational readiness of the power units, this year's engagement of the reservoir HPPs is almost three times less than in February last year. On the other side, TPP-HP were less engaged by over 50 million kWh, or 3.5 times less, as in the last year they were engaged considerably above the plan. As for the (coal-fired) TPPs, difference between this year's and last year's performance is about 20 million kWh, but it is worth mentioning that this year's utilization of TPPs is less than planned thanks to the system requirements: more hot and cold reserve, with reduced consumption, in order to utilize the most economical energy, which is the one generated by HPPs - said Stanojević.

The situation about the rational use of hydropower is fairly clear and understandable, as the “uncaught” water slips down the river. What we wondered however was how the outputs of coal-fired plants were almost identical in the comparable periods, since difficulties miners encountered last winter are even known to the general public, to mention the situation when on several occasions the transportation of coal was threatened, which inevitably had to have some consequences for the operation of TPPs.

Better care of the equipment needs to be taken

- The rehabilitation of the equipment that was performed in the past decade resulted in increased reliability and availability of thermal power units, equal to those of similar power units in the surrounding, but, unfortunately, it was not enough in the critical 13 days of February 2012 to achieve the output of more than one billion kWh. Power units, of course, could not achieve their best performance without enough coal. It was actually the case - coal reserves in the stockpiles were reduced and coal transportation impeded. The only solution was to raise the heat balance by using fuel oil so the output of our own TPPs could for the most part answer the electricity demand in Serbia. To illustrate, in those 13 days total 622 million tons of coal was dispatched for the needs of power units in TENT, which is almost half of the total consumption of the primary energy source in the comparable period i.e. of the total shipment in the period analyzed. And, of course, fuel oil had to be purchased and added

to, which is also difficult to transport. In last February, TPP TENT B spent on a daily basis 1800 tons while TPP TENT A was spending up to 1,250 tons of fuel oil. Cumulatively for 13 days, TENT A spent about 9.7 thousand tons of coal, and TENT B near 7.7 thousand tons, which makes a total of 17.4 thousand tons of fuel oil. In the same period this February both plants spent only 553 tons. Even better indication of the last winter costs is obtained from the comparison with the annual consumption of fuel oil in 2011. For the entire year, TENT power units A and B have spent more than 20 thousand tons of fuel oil, and the difference between the money spent in the first 13 days of February last year and this year equals 8.5 million euros - said Vera Stanojević.

Our interviewee pointed out that the cost for procurement of fuel oil is not the only additional cost of production for last year's severe winter, although it should be included in the total cost in addition to the cost of the primary energy source used to increase the volume of production of TPP-HTs.

- Last winter, electricity consumption was constantly growing faster than the production of electricity, while at the same time it was difficult and more expensive to provide energy from other systems since the whole region was in the deficit. On average, each day was missing about 19 million kilowatt-hours. This year production is greater than consumption, and the overall difference in the mean daily temperature is 13.8 degrees - said Stanojević.

Speaking on the need for better care aimed at achieving more balanced and more rational use of equipment, Stanojević said that in the 13 days of February 2013 TPP worked with reduced capacity due to the technical minimum, which is characterized with less efficient work of these power units in this mode of operation.

- If we compare operation of the same power units in the week with nominal loads, with that in the week with technical minimums, according to our present possibilities for the calculation of operating and fixed costs, the expenditures of power units are the same. However, a more precise calculation will show that a difference in expenditures does exist. It should be noted that similar cases will occur more frequently in the future, considering the new rules of organizing work activities and the increased complexity of commercial, technical and business aspects of the market (e.g. the inclusion of wind power and small HPPs and the obligation to take over their energy during the uncertain period of engagement and scope of the supplied energy). For such a complex analysis of the economics of engaging various generating units, we need software based on mathematical models that take into consideration the above mentioned characteristics of generating units. Such systems cannot be purchased as a finished product, but must be built according to the customer needs and circumstances - Stanojević said.

She particularly noted that in the Department for production they recognized the necessity to develop such modern production-technical information system, which will provide increased energy, economic and environmental efficiency of the existing infrastructure of EPS production capacities. That is why, according to Stanojević, the implementation of the PROTIS system has begun, which will provide monitoring over power generation, technical efficiency and cost parameters of production capacities as well as maintenance management and maintenance costs.



Source Kwh/Serbia Energy