**There is a well-known saying that trouble never comes alone, so the domestic electric power industry, in addition to huge shocks on the international energy market and a large increase in prices, is plagued by numerous other problems.**
The loss of entire blocks from the system, the lack of lignite, record low hydropower reserves and huge sums of money used for imports are the reasons why the energy expert, Dr. Nenad Jovanovic, coined the term Serbian energy crisis. In the author's article for the **Klima101.rs** portal, Nenad Jovanović describes exactly how it came about.
Thermal power plants in Serbia provide stability in the supply of electricity from their own production, except when they do not. The natural resources of lignite provide us with security and reduce our dependence on imports, except when they are not available. This is how the Serbian energy crisis looks in the shortest description.
While Europe, as well as other continents, have faced an unstoppable rise in energy prices such as oil, gas and coal, in Serbia we have faced a completely separate and isolated problem. Instead of an electric power system that bases its stability on reliable thermal power plants, we have a system that bases its stability and security of electricity supply on renewable energy sources in the form of hydroelectric power plants and imports from neighboring countries.
At a time when the price boom of electricity was supposed to grab and use the natural potentials for increased electricity exports, we destabilized the electricity system by our inaction and came to a situation where we compensate the necessary consumption by importing electricity worth hundreds of millions of euros. Insufficient planning of all available thermal capacities at the moment of historically high prices of the European electricity market, makes the Serbian energy crisis a concept that should be considered separately.

## A brief overview of the energy crisis in Europe

During the autumn of last year, unusual disturbances occurred on the energy market in Europe. Energy prices such as natural gas and coal have reached historical highs caused by post-pandemic economic development, insufficient natural gas supplies but also a lack of wind power generation. To compensate for the lack of renewable energy supplies, coal and gas-fired power plants have increased their production, further stirring up the CO2 market.
This winter was atypical for the electricity system in Serbia. Instead of our thermal power plants, the stability of supply was based on hydroelectric power plants and renewable sources and imports.
This whole sequence of events has affected the wholesale electricity prices in Europe, which have reached values that are over 10 times higher than the usual prices in the last few years. The Republic of Serbia, as a part of that single electricity market, could not bypass these tectonic changes, and very quickly the whole wave of changes reflected on our conditions.

Just before the end of 2021 and the beginning of 2022, the prices on the SEEPEX stock exchange (licensed operator for the organized electricity market) reached values of about 500 € / MWh, or about 60 RSD / kWh. This does not mean that the cost of production from domestic power plants has increased, but that we have imported electricity at that price and kept the electricity system stable.

## Serbian energy crisis scenario

If we ignore the events on the European market, Serbia was hit by a separate energy crisis that was not caused by foreign factors but by unsystematic planning of domestic resources. Namely, in 2021, one of the two largest units in the Nikola Tesla B thermal power plant went through the revitalization process in the period from May to December. In such a situation, all other available facilities at the highest level of readiness should be planned in order to meet the needs of electricity consumption.

Based on available public data from the European Network of Transmission System Operators for Electricity (ENTSO-E), all thermal and hydropower plants have undergone regular maintenance and the level of hydropower accumulation in June 2021 was at a five-year high to meet the winter season. Unfortunately, we quickly used up those stocks and we welcomed December 2021 with a record low level of hydro reserves, not only for that period, but throughout the entire calendar year.

And that’s not where our problems come from. What was clear to the professional and general public only on December 12, is the fact that we welcomed the winter without the necessary quantities of lignite for thermal power plants, which cover about 70% of the need for electricity. All these events caused the domestic energy crisis and we were forced to keep the electricity system stable and meet the increased consumption through large quantities of imported electricity. The mentioned tectonic changes in the European energy market only added fuel to the fire and made the new situation even more complicated. On a daily basis, imports cost up to 10 million euros, so the total projected cost of imports rose to 500 million euros for the import of electricity during the winter period, as forecast by the competent ministry

## Current situation

Instead of seizing the opportunity and turning the European energy crisis in our favor, the supply of electricity from our own capacities in Serbia is still not functioning at full capacity. According to the data of the Republic Bureau of Statistics, in the first two months of 2022, a drop in production in the energy sector of 26% compared to the same period last year. In terms of production of thermal and hydro power plants, this decline is 24% compared to the same period last year, according to ENTSO-E data.

Wholesale electricity prices in Europe have reached values over 10 times higher than usual prices in recent years

The Ministry of Mining and Energy also said that the level of coal supply is not sufficient for

the operation of all thermoblocks and that further electricity imports are needed during higher consumption at prices ranging from 150-250 € / MWh. It was also agreed to import from the Pljevlja coal mine, which will deliver 300,000 tons of coal to EPS due to reduced domestic coal production. Rehabilitation of the landfill at the Drmno surface mine is also planned with the aim of increasing stability and lignite production.

## Will we be ready next winter?

The summer period is reserved for standard repairs and after which the revitalization of thermal and hydro power plant units in order to welcome the winter with full hydro accumulations and sufficient quantities of coal for thermal power plants

A significant reconstruction is planned for TENT A1 in June, which, in addition to producing electricity, also supplies Obrenovac with thermal energy. Reconstruction was initially supposed to be completed by September, but the deadline has already been moved to October 2022. However, in order to reconstruct the TENT A1 block, the consent of the Ministry of Environmental Protection is required for a study on environmental impact assessment, which EPS has not yet provided which further complicates planning. This practically means that the legalization of the TENT A1 and A2 facilities in the city municipality of Obrenovac is still pending.

The Serbian energy crisis was not caused by external factors, but by unsystematic planning of domestic resources, which we should avoid in the future.

On the other hand, hydro reserves should be planned. In March 2022, hydropower accumulations in Serbia reached a record five-year minimum of 159 GWh and in the coming period should be expected to grow due to more favorable hydrological conditions. Bringing hydro reserves to the required level of 400-450 GWh before the winter season will be a great challenge given the current rate of their filling.

In March, hydroelectric power plants produced 27% less electricity due to low hydro reserves and somewhat worse hydrological conditions, which affected not only Serbia but also countries like Italy, with a 41% drop, and Spain with 52% less hydro production compared to March last year.

The Serbian energy crisis, as a phenomenon of an undesirable and short-lived energy transition, has shown us that the seemingly stable production of thermal power plants in Serbia is becoming variable, unpredictable and unreliable. Natural reserves of lignite are unnaturally becoming a limiting factor of the expensive thermal sector. Due to the constant change in overhaul planning, insufficient amount of excavated coal and low hydropower in the reservoirs, it is increasingly certain that the Serbian energy crisis will last.

This demonstration exercise showed us that we could have invested millions already spent on imports in the construction of new capacity such as the reversible hydroelectric power plant Bistrica, and that investing in the past and outdated technology is not a real prospect. If we continue with the unsystematic approach to planning and maintaining the electricity

system, the energy transition will cost us a lot and the sustainability of EPS’s business will become questionable, Danas reports.