Press Release

25th of March 2024

Rețele Electrice Muntenia has finalized the modernization of the North Power Station, the largest in the Romanian distribution system, following investments of 70 million lei

- *The modernization of the North Power Station involved the complete consolidation of the building and the replacement of electro energetic equipment, without interrupting the supply to customers.*
- *The primary substation serves about 73,000 customers, from the north-central area of Bucharest, many central and local institutions, hospitals and household customers or economic agents.*

Bucharest - Rețele Electrice Muntenia company (part of the PPC Group, formerly named E-Distribuție Muntenia) has finalized the modernization works for the North Power Station, the largest primary substation in the country. The value of the investment is about 70 million lei, from the company's own funds.

The modernization project was particularly complex, as the full consolidation of the building and the replacement of all electro energetic equipment was carried out in stages, with many provisional situations, to carry out the modernization without interrupting the electricity supply to customers.

The primary substation is located in the central area of Bucharest and serves more than 73,000 customers, including central and critical institutions, hospitals and various ministries. The major benefits of the upgrade of North Power Station consist in increasing the security in the supply of existing customers, increasing the flexibility of the high and medium voltage network, as well as the possibility to accommodate increased demands and needs of consumption and regarding the number of customers.

"We continue the process of modernizing and developing the networks to ensure the necessary resilience, flexibility and level of digitization to successfully cope with accelerated electrification and

decarbonization processes of energy consumption, for the benefit of the community. The North Power Station upgrade was a large-scale project that required vision and customised engineering and construction solutions. A major challenge was that the works were carried out without interrupting the operation of the primary substation, which meant carrying out the building consolidation and replacing the electro energetic equipment while ensuring the smooth supply to around 73,000 customers. The concern for safety was at an extremely high level, as our colleagues and contractors' staff worked at height and in the vicinity of the operating installations," said **Mihai Pește, general manager Rețele Electrice companies.**

The North Power Station is equipped with six power transformers of 40 MVA (Mega Volt Amper) each, resulting in an installed power of 240 MVA and a guaranteed power of 160 MVA. The peak load recorded so far was around 127 MVA. This load level represents more than the value of the load in the whole Giurgiu county.

The primary substation is powered by four underground 110 kV power lines, which feature modern dry-insulated cables, and distributes electricity through 66 medium voltage lines, 34 10kV lines and 32 20kV lines. In the primary substation there are installed 64 MV cells (transformer cells, couplings, measurement, internal services and lines) operating at the voltage of 10kV, 76 MT cells (transformer cells, couplings, measurement, internal services and lines) operating at the voltage of 20kV and 11 cells of 110kV (transformer cells, couplers and lines). In the control room which is fully digital, 38 protection, measurement, telecommunications and internal service cabinets are installed, and the total length of the medium voltage cables used in the primary substation's modernization project is 26.8 km, respectively 61 .5 km for low voltage ones.

The modernization works consisted of replacing all six power transformers with modern, Romanian-made ones, with reduced losses and increased reliability, as well as replacing all 110 kV, 20 kV and 10 kV equipment and installations and secondary circuits. All newly installed equipment is encapsulated (the 110kV ones) or in compact construction (the MV ones). The electrical scheme of the primary substation has been improved by implementing a double busbar solution with longitudinal and transverse couplers, thereby achieving increased flexibility in the 110kV network in Bucharest.

The new transformers with natural cooling have a very low noise level to protect the comfort of nearby residents. In addition, modern switchgear has replaced oil technology, eliminating the risk of explosition and pollution. The new equipment eliminated the need to use about 6,000 liters of mineral oil.

As part of this important investment, the primary substation building, which dates back to 1969, has been completely renovated. As part of the process, brickwork and reinforced concrete totalling more

than 11,000 tonnes of materials were demolished in a first phase, then the primary substation building was consolidated in order to eliminate the seismic risk; some 6,000 cubic metres of concrete, more than 700 tonnes of concrete steel, some 75 tonnes of metal components were used. The space was thermally insulated to increase energy efficiency and a lighting system based on LED technology was installed for the same purpose. The work was carried out with the help of in-house teams and contractors who, on average, involved 50 people per month.

The primary substation's interior area of approximately 4,600 square metres is distributed over four floors. Following the installation of the new equipment, which is much more compact than the previous technology, 60% of the available space has been freed up, part of which will be used to build a technology testing and development centre for Rețele Electrice companies. The rest of the space can be used for the expansion of electricity distribution istalations, if necessary.

Rețele Electrice companies operate networks with a total length of over 133,000 kilometres in three major areas of the country: South Muntenia (including Bucharest), Banat and Dobrogea, covering a third of the local distribution market, and are developing an investment programme to improve service quality, network safety and performance and local implementation of PPC Group environmental standards. The electricity networks operated by the three Rețele Electrice companies include 287 primary substations and over 24,000 secondary substations.