

Energy generation at TE-KO Kostolac, Serbia

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Environmental standards priority of TPP Kostolac

The works to be completed during the overhaul of Unit B2 in 2019 are the installation of a system reducing nitrogen oxides by primary and secondary measures, valued at EUR 12.9 million.

In the thermal sector of the Kostolac branch of Elektroprivreda Srbije, several capital investments, projects in the field of environmental protection have been realized in the previous years, which enable electricity generation with higher environmental standards, says Nenad Markovic, director of energy generation at the branch of TE-KO Kostolac.

- EUR 123 million euros were invested in Kostolac thermal power plants. EUR 2.5 million was invested into upgrading unit A1 electrostatic precipitators, while some EUR 5 million was allocated to upgrade unit A2 electrostatic precipitators, which significantly improved the environmental protection, primarily air quality, of TPP Kostolac A. TPP Kostolac B also made these interventions: EUR 3.34 million was invested into upgrading unit B1 electrostatic precipitators, about EUR 7.9 million to reduce nitrogen oxide emissions at the boiler plant by primary measures, also on unit B1, and EUR 4,24 million into upgrading unit B2 electrostatic precipitators. About EUR 100 million invested in the flue gas desulphurization system, a system shared by units B1 and B2.

Unit revitalization investments

With regard to TPP Kostolac B, this thermal power plant has been significantly technically modernized thanks to comprehensive revitalizations that have breathed new life into units B1 and B2, enabling this thermal capacity to generate electricity in accordance with the designed capacity. The revitalization of unit B1 was finalized in 2014 with involvement of international companies, given the complexity of the plants and systems.

- On this occasion, a major overhaul of the turbine-generator was carried out, with contractors being Alstom from Poland and Feromont inženjering. The contract value was EUR 20 million. CMEC, a Chinese corporation, was responsible for upgrading of the EUR 3.34 million electrostatic precipitators, as well as for the fabrication, delivery and installation of boiler and steam pipeline systems, totaling EUR 85.2 million. A consortium made up of Siemens from Belgrade and Steinmiller Engineering from Germany has implemented a EUR

7.9 million reduction in nitrogen oxide emissions at the boiler plant. A consortium consisting of Feromont inženjering, Mitsubishi Hitachi Power Systems and Minel Kotlogradnja has upgraded the mills worth EUR 1.4 million - Markovic said.

Unit B2 was upgraded in two phases. First, in 2010, a major overhaul of the turbine-generator and an upgrade of the mills.

- Overhaul of the turbine-generator, worth EUR 12.35 million, was implemented by Alstom from Poland and Feromont inženjering. Consortium comprising Energoprojekt, Mitsubishi Hitachi Power Systems and Minel Kotlogradnja was in charge of upgrading the mills, and the value of this operation amounted to EUR 12.35 million - Markovic recalls.

Two years later, the second phase of this large-scale technological operation on unit B2 followed, and in 2012, an adaptation of the boiler piping system was carried out on unit B2 as part of a major overhaul of this unit. The contractors were Energoprojekt, boiler factory SES Tlmače, Feromont inženjering and Termoelektro a. d., while the value of this operation was EUR 52.3 million. At the same time, electrostatic precipitators of this unit were also upgraded, which was entrusted to Gosa Montaza and Energoprojekt Entel.

The works to be completed during the overhaul of Unit B2 in 2019 are the installation of a system reducing nitrogen oxides by primary and secondary measures, valued at EUR 12.9 million. Also, this year, the replacement of the RZV sheet metal package, worth RSD 98 million, will be performed, as well as the replacement of the MP1 part. The value of deliveries and works is RSD 143.4 million, together with the overhaul of turbine-generator B2, valued at EUR 2.9 million.

Projects in progress

A complete novelty in the Kostolac thermal sector is the construction of a wastewater collection and treatment system at TPP Kostolac B, valued at some six million euros, whose completion is planned for 2020. When it comes to new power generation capacities, Kostolac is getting a new 350 MW B3 unit, as well as the first wind farm.

- The value of the wind farm investment is EUR 96.4 million, and the deadline for completion of the project is 24 months from the date of signing the contract with the contractor. Completion of the tendering procedure and contract signing with the contractor is expected in the second quarter of 2020 - Markovic said.

The future Kostolac wind farm will have 20 wind turbines, with a total installed capacity of up to 66 megawatts, with an annual output of about 151 million kWh. Four wind turbine installation sites are envisaged, mainly reclaimed overburden dumps, that is, reclaimed land of former ash dumps.

The wind power plant construction project is being implemented in accordance with the strategic goals of the Republic of Serbia in the field of renewable energy sources set out in

the Energy Development Strategy of the Republic of Serbia until 2030 with projections until 2030, which primarily relate to increasing the share of energy from renewable sources in final consumption in Serbia. The main objective and purpose of the project is to increase the diversity of energy resources by building a wind farm, as well as to increase the share of emission-free energy that is conducive to environmental and climatic conditions and contributes to sustainable economic growth, social development and environmental protection.

All permits

With the conclusion of the Government of the Republic of Serbia of 21 June 2018, it has been determined that the construction of a wind farm in the Kostolac Coal Basin is a project of importance for the Republic of Serbia. The planning basis was provided and technical documentation for the future wind power plant was prepared. Permits and approvals were obtained, i.e. location conditions, building and energy permits for the Kostolac wind power plant, together with the decision granting the status of a temporary privileged power producer, Markovic concludes.