Non-Technical Summary

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Contents

1. Introduction

The European Bank of Reconstruction and Development (EBRD) is considering providing finance to Energetika – the District Heating Company of the city of Kragujevac to modernise the city's district heating (DH) system, through replacement of its current coal fired generation plant with gas fired boilers in Zastava. The project contributes to the "green" transition as it will result in the reduction in air/land/underground water pollution and will improve the fuel and cost efficiency of the system. The Project will also lead to overall improvement in the quality and reliability of the heating services.

This Non-Technical Summary (NTS) provides a description of the Project and describes the potential benefits and impacts associated with the Project's construction and the operation of the planned modernisation measures. It also makes recommendations as to how these impacts can be mitigated and managed through all phases of the Project's development. In addition, it provides a summary of the approach to future stakeholder engagement.

2. What does the Project include?

The city of Kragujevac is highly dependent on the district heating system with 44.5% of the users relying on the district heating and gas. The DH system comprises of a centralised production facility at Zastava, and decentralised production at locations with high heating demands across Kragujevac.

The primary centralised production facility at Zastava comprises of five steam boilers that were originally used to produce electricity. However due to damage to the turbines during the war in 1999, these boilers have been adapted to be used for heating. Two of these steam boilers are powered by gas and three by coal. The adaptation of the steam boilers for use in the DH system has resulted in an inefficient process which requires the steam generated from the boilers to be cooled down with water for transport in the district heating network resulting in energy losses.

The Project involves the decommissioning of these steam boilers, and installation of up to five new gas boilers with a total capacity of 110MW and will significantly increase the boiler efficiency from 55% to over 95%. The new gas boilers will also be designed to capture the waste heat from the boiler stack gases and will further improve the fuel and cost efficiency of the system.

Currently the Project is in design stage, and the construction works are yet to start. It is expected that the boilers will be purchased and installed before the end of 2021, with a decommissioning plan to be developed by Energetika that will detail the gradual removal of boilers no longer in use.

3. Why is this boiler upgrade required?

Over the past two decades, Serbia has witnessed extreme weather events such droughts, floods, exceptionally harsh winters which have caused major physical damage, financial losses and even deaths in Serbia, with significant impacts on the economy, especially in the

agricultural sector. In 2012, for more than 50 days, temperatures exceeded 35ºC resulting in more than one million hectares of lost agricultural production and over $141 million in damages across the country. In 2014, one of the heaviest rainfalls and worst floods on record affected more than 1.5 million people (20% of the population) and caused $2 billion in damages.

Climate change projections indicate that Serbia and the Western Balkans face a high probability of continuing temperature increases, along with more frequent and prolonged droughts and wildfires. There is therefore a strong need to reduce greenhouse gas emissions and to build resilience to climate change impacts.

The proposed project will contribute to minimising greenhouse gas emissions and will help in meeting the objectives of the Strategy for Sustainable Development of the City of Kragujevac prepared by the local government in 2013. Currently the heat energy production is mainly based on coal, with coal's contribution amounting to 76% of the total production of heat energy.

The Project will enable a complete phase out of coal from the centralised production facility at Zastava. This will result in reduction of greenhouse gas emissions, as combustion of natural gas emits significantly less greenhouse gas emissions and the new boilers will have a significantly higher efficiency. The Project is expected to result in a reduction of CO2 emissions of about 60,000 t/year. In addition, a far more advanced system of plant control and maintenance will be implemented, and the air quality across the city will improve.

4. What is the benefit of the Project to local people and economy?

Benefit to Users - The Project will benefit the current and future users of the DH system due to the improved district heating system which will provide greater flexibility in operations to meet the heating demands and will improve the overall efficiency and reliability of the system. The Project will also serve as a foundation for future Projects promoting the installation of renewable energy sources and energy efficiency measures.

Benefit to general public - The use of coal in the DH system has resulted in poor air quality. The majority of the complaints received by Energetika in the last three years were regarding the poor air quality caused in the City by their coal-fired boilers. The Project will result in a significant reduction in emissions of sulphur dioxide, and particulate matter, and will lead to an overall improvement in the ambient air quality.

5. What will be the potential adverse socio-economic impacts of the Project and how will they be mitigated?

Land and Economic Impacts

No land acquisition or permanent or temporary resettlement of people or economic displacement will be caused by Project activities. The new boilers will be installed within the existing Zastava complex, in an existing building where the turbines used to be located. All infrastructure connections (electricity, water, gas) are of sufficient capacity and does not require additional land.

Employment Opportunities

The main employment created will be through the construction phase, mainly through local contractors and equipment suppliers. No permanent additional staff are intended to be hired by the DH Company.

Pressure on social Infrastructure and Services

Given that construction will be largely renovation works and installation of boilers and that no substantial structures will be constructed over a long period, no extended pressures are expected on local social infrastructure or services.

Traffic Safety and Logistics

No significant pressure on the local road network and traffic is expected to be caused by the Project. There may be a brief period of inconvenience for the surrounding community when the boilers are transported and installed, and access may be affected on certain surrounding roads during this period. Traffic Management measures will be included in the Environment and Social Management Plan.

Community Health and Safety

No significant issues with regard to community safety are envisaged.

Water

No issues regarding Energetika's existing use of water have been identified. The installation of the new boilers will demand a relatively low level of water use as compared to the existing gas and coal fired steam boilers and should not significantly impact any local supplies.

Retrenchment

As a consequence of the old coal-fired boilers being replaced with more efficient gas-fuelled boilers, there may be a reduction in the number of staff required to operate the boilers. Energetika intends to reassign some of these workers to other positions at Energetika and older workers will be offered an early retirement package. Nonetheless, some workers may still be made redundant. These workers will be offered severance pay and redundancy package and may also request additional funds from central government to assist in financing these redundancy packages.

Energetika will develop a detailed retrenchment plan and will include details of the compensation measures and additional assistance to be provided by Energetika to the workers for accessing alternative employment opportunities.

6. What will be the key environmental impacts of the Project and how will they be mitigated?

Emissions to Air

At present, the coal fired boilers do not have the capacity to meet the national limits prescribed for the air emissions and have resulted in exceedances of particulate matter, sulphur dioxide, and nitrogen oxide emissions. The new boilers will be designed to comply

with the national emission limits, and also the more stringent standards prescribed in the EU Industrial Emissions Directive (Directive 2010/75/EU).

Currently, the emissions to air are monitored twice a year, at the beginning and the end of the heating season, which is in line with current national legislation. As part of the Project, a continuous emissions monitoring system will be installed in compliance with the EU Industrial Emissions Directive and will provide real time monitoring data.

Waste Management

The hazardous and non-hazardous waste types generated in the Zastava complex, are managed through a Waste Management Plan. The key waste streams produced on-site include: ashes and slags (as a by-product of burning the coal required for the current boilers); oily waste; aluminium materials used for production / pipelines; general waste and electronic and electrical waste (WEEE).

The waste is segregated where possible, and there is a recycling yard for waste on site. An authorised contractor collects the hazardous and non-hazardous waste from site for disposal into authorised sites. The quantities of waste generated, and information relating to their disposal are maintained at the site office and annual waste records are submitted to the Environmental Protection Agency.

With the installation of the new boilers, there will be change in the types of waste generated, and there will be no generation of slags and ashes which are currently generated from the use of coal. This will help address one of the most significant environmental issues at Zastava complex, which relates to the storage of ash (hazardous waste).

As part of this Project, Energetika will develop and implement an Ash Disposal Site Reintegration Plan. The purpose of this document is to ensure that all sites previously used for ash disposal are appropriately analysed and then remediated, covered and/or cleaned so that they are of no threat to the health of the local environment and communities.

The existing waste management plan for the plant will also be updated to reflect any changes to the types of wastes generated / no longer generated as part of the Project.

Water and Wastewater Management

Water consumption is expected to reduce once the new boilers are operational and will require less intensive treatment comprising of softening and filtration as compared to the existing boilers which require a chemical treatment plant.

The wastewater generation as part of the works undertaken for replacing the boilers will be limited to sanitary wastewater from the contractors, which will be appropriately managed through the Construction Environmental Management Plan. Once the new natural gas boilers have been installed and are fully operational, the wastewater generation from site is expected to improve in quality and reduce in quantity. The wastewater quality will be monitored to ensure the discharge limits are being met.

Raw materials and Energy Usage

The Project will result in elimination of the need of coal and will minimise the energy consumption specifically due to the decrease in energy requirements for transportation of coal to the boilers. The use of chemicals will also reduce as there will be no requirement for

the chemical treatment of water. The Project will also result in a significant reduction in CO2 emissions.

Biodiversity

The proposed site in Kragujevac is over 60km from the closest protected site. No protected areas were identified close to the site or will be impacted by the Project.

Visual Impacts

No visual impacts from the completed project are anticipated as the site is already operational and stacks for emissions to air already present. The new stacks are expected to be less in height as compared to the existing ones, and the boilers themselves will be located within the existing buildings.

Construction Dust and Noise

The Project is taking place on an existing operational site within an urban / industrial setting in Kragujevac and limited air emissions and noise pollution are expected. Some minor dust will be emitted during the installation of the improved thermal insulation on the outside of the buildings but will be controlled through the CEMP.

Ash and slag

The main environmental concern from the Project is an ash pile stored outdoor at main plant (approx. 40,000 t) due to lack of a suitable disposal route and lack of financial resources. As the pile is not covered, it poses risks to human health due to air-borne distribution of the ash particles. The Project will help addressing this issue by (i) stopping the production of slags and ashes by the replacement of coal boilers, and (ii) identifying the most appropriate option for the safe recycling/disposal of the ashes and financing the implementation of this option in a second stage.

7. Occupational health and safety measures

Health and safety at the company is well resourced, with a team of qualified personnel, and external support engaged where appropriate. Other proactive management processes are in place, including audits & inspections, and health and safety training. Emergency response provisions include fire detection and fighting systems. Preventative maintenance programmes are in place for plant and machinery.

It is unlikely that asbestos is present in the Zastava building, since it was rebuilt in 1999.

8. What about stakeholder engagement

A stakeholder engagement program envisages the consultation meetings with relevant interested parties prior to the commencement of the project as well as during the project implementation. Consultation and engagement activities are required to address current stakeholder suggestions, ideas or concerns.

Public consultation and engagement has not yet been carried out by Energetika on this Project. A Stakeholder Engagement Plan (SEP) has been developed which identifies the key stakeholders, effective engagement methods and will ensure that the requirements and

opinions of stakeholders, including citizens of Kragujevac, are understood and included within the design, development and execution of the project.

The following engagement activities will be undertaken:

- DH Company environmental and social meetings with the contractors;
- Meetings with the City Council of Kragujevac and local Environmental Inspectorate
- Reporting to EBRD; and
- Public consultation as part of the national environmental impact assessment process.

Energetika have a set procedure for submitting complaints, and have a Commission for resolving consumer complaints, which includes a representative of the Consumer Organization Kragujevac (in place since May 2015). Users can report:

- In person at the counter at Energetika d.o.o. in Ulica Nikole Pašića 15;
- Via email; or
- Online through the website.

Defects in the heating system can also be reported by users on the phone number 336-238 or by calling the toll-free number 0800 034-033. Residents in Kragujevac can also submit complaints through these channels, with most regarding the quality of heating supply in the City.

9. Contacts

Contact details and responsibilities for the Project are as follows:

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