

**DOCUMENT OF THE EUROPEAN BANK
FOR RECONSTRUCTION AND DEVELOPMENT**

Approved by the Board of Directors on 23 June 2021¹

SERBIA

**KRAGUJEVAC DISTRICT HEATING
PROJECT**

[Redacted in line with the EBRD's Access to Information Policy]

[Information considered confidential has been removed from this document in accordance with the EBRD's Access to Information Policy (AIP). Such removed information is considered confidential because it falls under one of the provisions of Section III, paragraph 2 of the AIP]

¹ As per section 1.4.8 of EBRD's Directive on Access to Information (2019), the Bank shall disclose Board reports for State Sector Projects within 30 calendar days of approval of the relevant Project by the Board of Directors. Confidential information has been removed from the Board report.

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ABBREVIATIONS / CURRENCY CONVERSIONS

AESR	Annual Environmental and Social Report
CAPEX	Capital Expenditures
CEMP	Construction Environmental Management Plan
CO ₂	Carbon Dioxide
CPI	Consumer Price Index
DH	District Heating
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
E&S	Environmental and Social
EPS	Elektroprivreda Srbije
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
EURIBOR	European Interbank Offered Rate
GET	Green Economy Transition
GHG	Greenhouse Gases
GDP	Gross Domestic Product
GZ	Group Zastava
H&S	Health and Safety
HSSE	Health, Safety, Social and Environmental
IED	Industrial Emissions Directive
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contribution
LCDS	Low Carbon Development Strategy
m	Meters
m ³	Cubic Meters
MEI	Municipal and Environmental Infrastructure
MoEP	Ministry of Environmental Protection
MOU	Memorandum of Understanding
MW	Megawatt
NDC	Nationally Determined Contribution
NECP	National Energy and Climate Plan
NO _x	Nitrous Oxide
OPEX	Operating Expense
NTS	Non-Technical Summary
PIU	Project Implementation Unit
PP&R	Bank's Procurement Policy & Rules
REDE	Renewable District Energy
REDEWEB	Renewable District Energy in the Western Balkans
SO ₂	Sulphur Dioxide
PM	Particulate Matter
RSD	Serbian Dinar
SEP	Stakeholder Engagement Plan
TC	Technical Cooperation
UNFCCC	United Nations Framework Convention on Climate Change

CURRENCY CONVERSION
(as of 17 May 2021)
EUR 1 = RSD 117.57

PRESIDENT'S RECOMMENDATION

This recommendation and the attached Report concerning an operation in favour of the Republic of Serbia (the "**Borrower**") are submitted for consideration by the Board of Directors.

The facility will consist of a sovereign loan to the Borrower in the amount of up to EUR 18 million to finance decarbonisation of coal-fired assets in the district heating ("**DH**") company (the "**DH Company**") in the city of Kragujevac (the "**City**" or "**Kragujevac**") and improve air quality. The proposed loan will consist of two tranches: i) the first tranche of up to EUR 14 million, will be committed at signing ("**Tranche 1**") and ii) the second tranche of up to EUR 4 million, will be committed at the Bank's discretion following completion of due diligence ("**Tranche 2**"). The Ministry of Environmental Protection (the "**MoEP**") will be responsible for implementing the Project.

Tranche 1 will finance the decommissioning of 50 year old coal-fired heat generation boilers and the installation of new 110MW natural gas-fired hot water boilers. This urgently needed investment will eliminate coal from Kragujevac's DH mix and significantly improve air quality in the City. Moreover, the Project will serve as a foundation for future investments by introducing renewable energy sources and energy efficiency measures through both policy dialogue and TC-funded support. Tranche 2 will finance the remediation of an open ash disposal site (c. 40,000 tonnes) located within the Kragujevac DH Company complex which poses major risks to human health due to air-borne distribution of the ash particles.

The expected transition impact of the Project is derived from the Green quality thanks to its considerable environmental benefits, including the reduction of CO₂ (66 per cent), sulphur dioxide (100 per cent), nitrous oxide (89 per cent) and particulate matter emissions (100 per cent), along with water savings (55 per cent), and overall energy efficiency improvements of the DH system. [REDACTED]. It will also prevent a generation of new quantities of ash and slag and related water contamination, identify options for recycling and disposal of fly ash, and support remediation of the existing ash disposal site. The GET share of Tranche 1 has been confirmed at 100 per cent, while the GET share of Tranche 2 will be assessed following the due diligence prior to its commitment.

The Project includes a significant package of TC support and policy dialogue to support decarbonisation. Specifically:

- 1) The Bank will support the DH Company with preparation of a pre-feasibility study to assess the potential utilisation of renewable and urban waste heat in Kragujevac's DH system, which will form the basis of a subsequent renewable/low carbon heat supply project;
- 2) In coordination with the EU, the Bank will support the Government of Serbia in preparation of the National Energy and Climate Plan ("**NECP**"), through its in-house support [REDACTED]. The NECP will define 2030 goals for increasing energy efficiency and the share of renewable energy sources, reducing

greenhouse gas emissions, as well as policies and measures to implement these targets.

- 3) The Bank will assist MoEP with the development of a technical and environmental screening study to identify options for reusing and/or recycling and safe disposal of fly ash and slag produced by coal plants and heating boilers in Serbia. As Serbia is willing to move from coal to greener energy, this change needs to be accompanied by proper management of the ash which is currently disposed in urban and industrial areas and leads to significant environmental and health and safety issues. In its first phase the study will focus on Kragujevac and the second phase will cover the entire country. [REDACTED].

I am satisfied that the operation is consistent with the Bank's Strategy for Serbia, the Municipal and Environmental Infrastructure Sector Strategy, the Bank's Green Economy Transition Approach 2021-2025 and with the Agreement Establishing the Bank.

I recommend that the Board approve the proposed loan substantially on the terms of the attached Report.

Odile Renaud-Basso

BOARD DECISION SHEET

SERBIA - Kragujevac District Heating Project - DTM 52593	
Transaction / Board Decision	Board approval ² is sought for a sovereign loan of up to EUR 18 million to the Republic of Serbia (the “ Borrower , the “ Client ”) consisting of 2 tranches: 1) up to EUR 14 million to be committed at signing (“ Tranche 1 ”) and 2) an uncommitted tranche of up to EUR 4 million, to be committed at Bank’s sole discretion following completion of due diligence (“ Tranche 2 ”) (jointly the “ Project ”). The loan proceeds of Tranche 1 will be used for (i) decommissioning of old coal boilers from the district heating (“ DH ”) system in the city of Kragujevac, the fourth largest city in Serbia (the “ City ” or “ Kragujevac ”), (ii) installation of new natural gas-based hot water boilers, with a total capacity of 110MW, and (iii) works supervision. The loan proceeds of Tranche 2 will be used for (i) remediation of the ash disposal site located within the complex of City’s DH Company (the “ DH Company ” or “ Energetika ”) and (ii) related PIU support and works supervision for Tranche 2. It is proposed that the decision to commit Tranche 2 is delegated to Management upon completion of separate due diligence.
Client	The Client is the Republic of Serbia, represented by the Ministry of Environmental Protection (the “ MoEP ”) which will be in charge of project implementation. The ultimate beneficiary is the DH Company, a state-owned company providing heat to 20,864 households (41 per cent of the City’s households).
Main Elements of the Proposal	<p>Transition impact:</p> <ul style="list-style-type: none"> – Primary Quality: Green: The Project will drastically reduce CO₂ and NO_x emissions, eliminate emissions of SO₂ and particulate matter, decrease water use, and substantially improve energy efficiency of the system. The reduction of CO₂ emission will amount to 60,364 t/y or 66 per cent. [REDACTED]. The Project qualifies for 2 uplifts based on: 1) significant environmental benefits resulting in reduction of PM 2.5 emissions [REDACTED]; and 2) NECP related policy dialogue. <p>Additionality: (i) Financing structure - EBRD offers financing that is not available in the market from commercial sources on reasonable terms and conditions; (ii) Risk mitigation - EBRD helps the client to mitigate carbon transition risks and take climate action; (iii) Standard-setting - Client seeks EBRD expertise on best international procurement standards (iv) Knowledge, innovation and capacity building - EBRD provides expertise, innovation, knowledge and/or capabilities that are material to the timely realisation of the project’s objectives, including support to strengthen the capacity of the client.</p> <p>Sound banking: The transaction is a sovereign loan.</p>
Key Risks	Key risks include implementation risk [REDACTED] and will be mitigated through the appointment of procurement and PIU consultancy support and an independent supervision engineer.
Strategic Fit Summary	The Project is in line with the Bank’s Strategy for Serbia, Green Economy Transition Approach 2021-2025 and the Municipal and Environmental Infrastructure Sector Strategy.

² Article 27 of the AEB provides the basis for this decision.

ADDITIONAL SUMMARY TERMS FACTSHEET

EBRD Transaction	A sovereign loan of up to EUR 18 million consisting of two tranches: Tranche 1 (EUR 14 million) will be committed at signing, and an uncommitted Tranche 2 (EUR 4 million), will be committed at Bank's sole discretion following completion of due diligence. The loan will be provided to the Republic of Serbia and implemented by the MoEP, with Kragujevac DH Company as the ultimate beneficiary. The loan will finance priority investments in the City's DH system which will help eliminate major causes of the City's air pollution through the replacement of 50 year old coal-fired boilers and remediation/closure of its ash disposal site.
Existing Exposure	As of March 2021, the Bank's total amount of sovereign portfolio in Serbia was EUR 848 million (50 per cent limit utilisation), and operating assets for sovereign loans was EUR 474 million.
Maturity / Exit / Repayment	15-year tenor [REDACTED]
Potential AMI eligible financing	None.
Use of Proceeds	<p>The loan proceeds of Tranche 1 will be used for (i) decommissioning of old coal boilers from the City's DH system, (ii) installation of new natural gas-based hot water boilers, with a total capacity of 110MW, and (iii) works supervision. The loan proceeds of Tranche 2 will be used for (i) remediation/closure of the ash disposal site located within the complex of the DH Company and (ii) PIU support and works supervision.</p> <p>The EBRD funds will be disbursed directly to the supplier, to be selected in line with the Bank's Procurement Policy & Rules ("PP&R").</p>
Investment Plan	[REDACTED]
Financing Plan	[REDACTED]
Key Parties Involved	<ul style="list-style-type: none"> • The Ministry of Finance of the Republic of Serbia; • The Ministry of Environmental Protection; • Kragujevac DH Company.
Conditions to effectiveness	<ul style="list-style-type: none"> • [REDACTED] • Duly executed Project Agreement between the parties; • The project implementation unit has been established by the Borrower and the DH Company with adequate resources and suitably qualified personnel. <p>Condition to the commitment of Tranche 2: (a) the technical, environmental and social due diligence has been completed in a manner satisfactory to the Bank and Tranche 2 Environmental and Social Action Plan ("ESAP") has been agreed; and (b) the Bank has delivered the Tranche 2 Notice to the Borrower. [REDACTED]</p>
Conditions to disbursement	<p>Tranche 1:</p> <ul style="list-style-type: none"> • Appointment of an independent engineer to supervise the Tranche 1 construction works; <p>Tranche 2:</p> <ul style="list-style-type: none"> • Appointment of an independent engineer to supervise the Tranche 2 construction works, and

	<ul style="list-style-type: none"> Satisfactory and timely implementation of Tranche 1 ESAP and compliance with EBRD PRs.
Key Covenants	<ul style="list-style-type: none"> Satisfactory implementation of the ESAP and compliance with the EBRD Environmental and Social Policy relating to the project preparation activities; [REDACTED]
Security / Guarantees	None (sovereign loan)
Other material agreements	Project Agreement between the Bank, the MoEP, and the DH Company.
Associated Donor Funded TC and co-investment grants/concessional finance	<p>A. Technical Cooperation (TC)</p> <p><i>Pre-Signing:</i></p> <ul style="list-style-type: none"> TC1: Technical due diligence and advance procurement support, including a technical and economic review of any proposed works or designs and providing support in preparing the tender documents, evaluation of tenders and the contract award. [REDACTED] TC2: Environmental and social due diligence including preparation of all environmental and social aspects of project implementation [REDACTED]. TC3: Technical and environmental screening study on identification of options for recycling and disposal of fly ash and slag produced by coal plants and heating boilers in Serbia. [REDACTED] <p><i>Post Signing:</i></p> <ul style="list-style-type: none"> TC4: Assessment of renewable DH potential, to analyse the potential for utilisation of renewable and urban waste heat in the DH system in Kragujevac, as well as potential for DH expansion. [REDACTED] TC5: Technical, environmental and social due diligence for Tranche 2. Based on the output of TC3, detailed due diligence will be undertaken for the selected option for the City of Kragujevac. [REDACTED]. The cost estimate for the assignment will be determined by the outcome of TC3. [REDACTED] <p><i>Cost sharing:</i> No cash client contribution is envisaged for the project. The Client will provide parallel contribution to fund construction supervision and PIU support [REDACTED]</p> <p>B. Co-investment grants / Concessional Finance (Non-TC) None.</p>

[REDACTED]

INVESTMENT PROPOSAL SUMMARY

1. STRATEGIC FIT AND KEY ISSUES

Air quality is a critical issue in Serbia, which ranks first in Europe and ninth in the world for pollution-related deaths according to the Global Alliance in Health and Pollution report. The World Health Organisation estimates that in 2016 Serbia had 6,592 premature deaths related to respiratory illnesses, which is an increase by 22 per cent compared to the previous year, and 131,183 years of life lost. The burden of disease also has an enormous economic impact given that the cost of premature deaths and lost working days due to air pollution represents over 33 per cent of Serbia's gross domestic product.³

The City of Kragujevac, the 4th largest city in Serbia with a population of 180,252 inhabitants, suffers from very poor air quality for several reasons. While there are many factors contributing to poor air quality in Kragujevac, the coal fired boilers in the City's DH system are the main source of air pollution. Located in the city centre and with an average age of 50 years, these boilers are highly inefficient. Air pollution is exacerbated as the Kragujevac DH Company has an uncovered ash disposal site on, which was not built in accordance with any sanitary or safety standards. In addition to contributing to air pollution from flying ash, the disposed ash also contributes to soil and underground water contamination. The current situation is unsustainable and addressing this situation is critical.

The Republic of Serbia, the owner of the Kragujevac DH Company, has prioritised the modernisation of the DH system and the replacement of all of its current coal-fired generation capacity to combat the critical environmental situation in the City. The City's DH system has a total capacity of 433MW spread over six locations. The largest (304MW) and the oldest boiler house ("**Zastava**") is located in the city centre where 241MW is supplied by three [REDACTED] coal boilers which were installed in the 1970s and cause severe air pollution. The remaining capacity (63MW) is supplied by two natural gas boilers from the 1960's. [REDACTED] Zastava is the only location where coal is used. In addition to Zastava, there are five other boiler houses with a total capacity of 129MW which use natural gas as the primary energy source. The average age of all boilers is 35 years.

In order to eliminate coal from the City's DH supply and to address related ash management issues, the Government of Serbia approached the Bank with a request to finance the decommissioning of the Zastava plant's old coal boilers, construction of a new state-of-the-art natural gas plant (which will use existing gas pipeline infrastructure and connection capacity), and remediation of the ash disposal site. The technical due diligence concluded that the new plant should have a capacity of 110MW [REDACTED].

³ Source: WHO European Centre for Environment and Health of the WHO Regional Office for Europe

The due diligence assessed the potential to replace existing coal capacity with the large-scale Renewable District Energy (“**ReDE**”) solutions, primarily biomass boilers, solar-thermal, geothermal, and heat pump based heating plants. [REDACTED] Both technical and environmental due diligence confirmed that the proposed natural gas-based solution is expected to provide the fastest and most economical path to a less carbon intensive and cleaner environment in the City. The Project is expected to drastically reduce CO₂ and NO_x emissions (66 and 89 per cent, respectively), eliminate emissions of SO₂ and particulate matter, decrease water use (55 per cent), and substantially improve the energy efficiency and reliability of the system. [REDACTED]

At the same time, the proposed Project does not lock-out, but rather enables, future utilisation of low carbon fuel sources and the implementation of low carbon technologies. [REDACTED] The DH Company [REDACTED] requires capacity building in this area, which the Bank will bring as part of a post-signing TC assignment which will further assess the potential utilisation of renewable and urban waste heat in the DH system, support the implementation of the identified Decarbonisation Pathways and, and ultimately form the basis of subsequent renewable DH projects in the City.

Furthermore, the Bank will assist MoEP with the development of a technical and environmental screening study on the identification of options for reusing and/or recycling and safe disposal of fly ash and slag produced by coal plants and heating boilers in Serbia. As Serbia is willing to move from coal to greener energy, this change must be accompanied by proper management of the ash, which is currently disposed in urban and industrial areas and leads to significant environmental and health and safety issues. In its first phase the study will focus on Kragujevac. Once a suitable option for ash disposal and recycling is identified through the scoping study and agreed with the Client and the DH Company, a detailed feasibility assessment will be developed prior to commitment of Tranche 2. The second phase of the study will cover the national scope.

1.1 STRATEGIC CONTEXT

Serbia has a credible climate commitment for the sector to move towards decarbonisation, and is in the accession process to become a member of the EU. Serbia has been part of the United Nations Framework Convention on Climate Change (“**UNFCCC**”) since 2001 (non-Annex 1 Party) and the Kyoto Protocol since 2008 as a developing country, and ratified the Paris Agreement in 2017. It submitted its Intended Nationally Determined Contribution (“**INDC**”) to the UNFCCC in June 2015 whereby it committed to reduce, by 2030, its greenhouse gas emissions (“**GHG**”) by 9.8 per cent compared to 1990 as the baseline year.

The Sofia Declaration on the Green Agenda for the Western Balkans, adopted by the all leaders from the Western Balkans in November 2020, commits to working towards the 2050 target of a carbon-neutral continent together with the EU. This, *inter alia*, includes:

- Align with the EU Climate Law once it is adopted with a vision of achieving climate neutrality by 2050;
- Setting forward-looking 2030 energy and climate targets in line with the Energy Community framework and EU acquis;
- Developing and implementing integrated Energy and Climate Plans;
- Continuing alignment with the EU Emissions Trading Scheme and progressive decarbonisation of the energy sector; and
- Increasing the share of renewable energy sources and provide the necessary investment conditions, in line with the Energy Community framework and EU acquis.

In recent months, Serbia has made significant progress with regards to the improvement of its regulatory framework and, in March 2021, adopted its first **Law on Climate Change**. The law provides a framework for development by the year 2050 and its implementation will establish a system for reducing and monitoring GHG emissions and ensure adaptation to changed climate conditions. The law fulfils the obligations under the UNFCCC and the Paris Agreement and harmonises domestic legislation with the EU acquis. It also introduces the obligation to produce, within 2 years, a **Low Carbon Development Strategy (“LCDS”) together with a 10-year Action Plan and Climate Change Adaptation Programme**. The LCDS has been prepared with the financial and technical support of the EU Instrument for Pre-Accession Assistance, and is currently undergoing inter-ministerial consultations before being submitted for adoption. The draft LCDS Action Plan covers the period up to 2030 and a perspective until 2050, and it aims to support Serbia in fulfilling its obligations under the Paris Agreement as well as to present options for alignment of the country’s GHG emissions pathway to the EU’s in an affordable and socially fair way. The MoEP is in charge of coordinating climate change policy in the Republic of Serbia. Currently, Serbia is also preparing a **revised Nationally Determined Contribution (“NDC”)** and the draft (November 2020) identifies increased climate ambitions. By 2030, Serbia is now aiming to reduce its GHG emissions by 33.3 per cent compared to 1990 level (i.e. 13.2 per cent compared to the 2010 level).

In addition, in April 2021, Serbia also adopted a set of laws which accelerate the decarbonisation of Serbia's energy sector and provide support for increasing the share of renewable sources. This includes the new **Law on Renewable Sources, Law on Energy efficiency and Rational Use of Energy**, as well as an amendment to the **Law on Energy** which will create a legal basis for the adoption of the **National Energy and Climate Plan (“NECP”)** which is currently being prepared.

The Bank has provided support to the Government of Serbia in preparation of the new Law on Renewable Sources (covering both heat and electricity sector), which was adopted in April 2021. The Bank also signed an MoU with the Serbian Ministry of Mining and Energy (“MoME”) in March 2021 which is focused on ReDE project development and improvement of the regulatory framework to incentivise ReDE implementation. The MoU provides a framework for cooperation with the aim of improving air quality, promoting the use of renewable energy sources and increasing energy efficiency in Serbia. Based on this MoU, EBRD and the MoME agreed to work

on developing the *Renewable District Energy Programme in Serbia* with a focus on policy reforms and support for project development and implementation. As part of the Programme, the Bank will assist with developing relevant bylaws to the Law on Renewable Sources to incentivise the uptake of renewable heat generation for district heating in Serbia.

In addition, the Bank will also support the Government of Serbia in preparation of the NECP, through its in-house expertise. The NECP adoption is recommended for the Energy Community Contracting Parties, while it is mandatory for EU member states. The NECP will define 2030 goals for increasing energy efficiency and the share of renewable energy sources, reducing GHG emissions, as well as policies and measures to implement these targets. Further, the NECP will also include a perspective until 2050 in order to ensure consistency with long-term relevant policy objectives at EU, UNFCCC and Energy Community. [REDACTED]

The Project is consistent with the Bank's Strategy for Serbia which identifies support to green economy as one of three strategic priorities, by engaging in energy efficiency and financing lower GHG emission technologies to improve energy mix, the Municipal and Environmental Infrastructure Sector Strategy which aims to scale up high GET-impact investments in district energy and energy efficiency sectors; and the Green Economy Transition Approach 2021-2025. The Project delivers GET by actively using public channels of transition impact within the Bank's mandate to deliver energy efficiency and climate change mitigation outcomes, which is fully in line with the GET approach.

The project is considered to be aligned with the goals of the Paris Agreement.

1.2 TRANSITION IMPACT

Primary Quality: Green

Obj. No.	Objective	Details
1.1	<i>The project contains one or more activity(ies) that can qualify as GET and the percentage of EBRD use of proceeds that qualifies as GET finance is equal to or exceeds the sectoral threshold in the GET TI assessment methodology.</i>	The Project involves modernisation of the City's DH system by replacing its coal-fired central heating plant with a modern natural gas-fired plant and remediation of the ash disposal site. The Project will drastically improve air quality in the City and deliver major GET benefits through reduction of CO ₂ (by 66 per cent), air pollutant emissions (SO ₂ , NO _x , and PM), and water consumption, and through improvement of energy efficiency and reliability of the DH system. The efficiency of heat generation in the new plant is estimated to reach ca. 97%. The Project will allow elimination of the generation of new quantities of ash and slag and support remediation of the ash disposal site. The GET share of Tranche-1 has been confirmed at 100 per cent. The GET share for Tranche 2 will be assessed following due diligence prior to its commitment.

1.2	<i>The environmental impact of the project is expected to meet or exceed one or more of the quantitative physical scale thresholds as outlined in the GET TI assessment methodology.</i>	The Project will result in [REDACTED] PM 2.5 reduction [REDACTED].
1.3	<i>The project entails a package of policy dialogue, which fulfils the following conditions: a) The dialogue covers one or more green topics related to the GET approach; b) The dialogue aims to achieve a clear policy outcome (e.g. regulatory change); c) A relevant counterparty (normally Governmental authorities), which is in a position to implement the policy reform, is part of the dialogue; d) The policy outcome has a systemic and long term impact beyond project boundaries so it will influence other stakeholders and result in structural change; e) The dialogue is new in the context of the market/country/industry and is aligned with international best practices, and where relevant, the reform priority areas identified by EBRD's country strategy; and f) The dialogue has a well-defined budget, resources, work plan and timeline as well as appropriate benchmark indicators that monitor success in implementation.</i>	In coordination with the EU, the Bank will support the Government of Serbia and the Working Group set up at the level of MoME, in preparation of the NECP, through its in-house expertise. This policy dialogue covers the climate change mitigation aspect of the Bank's GET approach as the NECP will define 2030 goals for increasing energy efficiency and the share of renewable energy sources, reducing GHG emissions, as well as policies and measures to implement these targets. Further, the NECP will also include a perspective until 2050 in order to ensure consistency with long-term relevant policy objectives at EU, UNFCCC and Energy Community. Therefore, the policy dialogue has a systemic and long term impact beyond project boundaries so it will influence other stakeholders and result in structural change. [REDACTED]

Delivery Risks:

[REDACTED] Implementation risk that could delay the Project's green TI quality will be mitigated through the appointment of a procurement and PIU consultancy support. Implementation will be supervised by an independent engineer to help ensure that the Project delivers the anticipated emission savings. In addition, an independent consultant will be hired by the DH Company to verify these savings following Project completion. Serbia has a credible commitment towards decarbonisation and alignment of its regulatory framework with long-term relevant policy objectives at EU, UNFCCC and Energy Community, which mitigates the risks related to policy dialogue results.

1.3 ADDITIONALITY

Identified triggers	Description
The project's overall PD rating is at or better than 'one notch below investment grade' (4.7) / strong	The Project's PD rating is 4.7.

sponsor who can obtain better terms financing through access to international markets.	
Additionality sources	Evidence of additionality sources
<p>Financing Structure EBRD offers financing that is not available in the market from commercial sources on reasonable terms and conditions, e.g. a longer grace period. Such financing is necessary to structure the project. [REDACTED]</p> <p>Public sector: EBRD investment is needed to close the funding gap. At the same time, EBRD does not crowd out other sources, such as from IFIs, government, commercial banks and/or complements them.</p>	The Bank provides long-term financing of 15 years [REDACTED], which is not readily available in Serbia from local or international commercial banks. [REDACTED]
<p>Risk Mitigation EBRD helps the client to mitigate carbon transition risks and take climate action, such as to move along a low carbon transition pathway.</p>	<p>The Project will support development of the pre-feasibility study for the DH Company to undertake a detailed assessment of the potential utilisation of renewable and urban waste heat in the DH system, which will form the basis of subsequent renewable DH projects in the City.</p> <p>The Bank will support the Government of Serbia in preparation of the NECP, through its in-house expertise. [REDACTED]</p>
<p>Standard-setting: helping projects and clients achieve higher standards Client seeks/makes use of EBRD expertise on best international procurement standards</p>	[REDACTED] The Bank is providing technical assistance for tendering process which will be carried out in line with best international standards and contribute to enhanced technical and implementation capacities of the MoEP.
<p>Additionality sources: Knowledge, innovation and capacity building EBRD provides expertise, innovation, knowledge and/or capabilities that are material to the timely realisation of the project's objectives, including support to strengthen the capacity of the client.</p>	The DH Company [REDACTED] requires capacity building in this area, which the Bank will bring through the post-signing TC support. The Bank is highly additional due to its district heating sector expertise and long-lasting policy dialogue in the renewable energy area. The Bank will also ensure the application of the best international technical, environmental and social, and procurement standards.

1.4 SOUND BANKING - KEY RISKS

Risks	Probability / Effect	Comments
<i>Project specific risks</i>		
Implementation risk	Medium/High	[REDACTED] The implementation will be supervised by an independent engineer, to be financed from the Bank's loan.
<i>External risks</i>		

Macro-economic risk	Medium/ High	Notwithstanding the recent shock caused by the COVID-19 crisis, long term outlook for the country remains resilient. On 12 March 2021, Moody's upgraded the sovereign rating for Serbia from Ba3 to Ba2, changing the outlook from positive to stable. Both Fitch and S&P affirmed Serbia sovereign rating at BB+/Stable. EBRD's latest internal forecast from September 2020 envisages recovery with the GDP growth at 3 per cent in 2021. IMF considers Serbia's public debt levels sustainable and it forecasts 5.0 per cent growth in 2021 and public debt at 59.0 per cent of GDP at end-2021, falling afterwards to 45.6 per cent of GDP in 2026.
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2. MEASURING / MONITORING SUCCESS

<i>Overall objectives of project</i>	<i>Monitoring benchmarks</i>	<i>Implementation timing</i>
On-time project implementation	Completion of both Tranche 1 and Tranche 2 according to the timeline and within budget	[REDACTED]

TI indicators, Primary Quality: Green

No	Monitoring indicator	Details	Baseline	Target	Due date
1.1	PM reduced (tonnes/year)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.2	Recommended policy or strategy or regulatory framework/ standard agreed by relevant stakeholder(s) [Covenanted]	Serbia has already adopted the National Renewable Energy Action Plan (NREAP) and has started with the development of National Energy and Climate Plan (NECP). The Bank will support the Government of Serbia in preparation of the NECP, through its in-house expertise. The NECP adoption by the government by end February 2022 will be covenanted.	[REDACTED]	[REDACTED]	[REDACTED]
1.3	SO ₂ reduced (tonnes/year)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.4	NO _x reduced (tonnes/year)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.5	New or updated GET technology or product leading to energy efficiency introduced	Coal-fired boilers will be replaced with natural gas-fired boilers, resulting in significantly improved energy efficiency.	[REDACTED]	[REDACTED]	[REDACTED]
1.6	CO _{2e} emissions reduced (tonnes/year)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.7	Water saved (m ³ /year)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

3. KEY PARTIES

3.1 BORROWER

The Borrower is the Republic of Serbia represented by the MoEP.

The Serbian economy experienced a mild recession in 2020. After expanding at 4.2 per cent in 2019, the economy contracted by 1.0 per cent in 2020. The fall in GDP in 2020 was mostly a consequence of falling exports and consumption, while increased government expenditures and smaller imports counterbalanced most of the fall. Still strong growth in Q1 2020 (5.2 per cent year-on-year), structure of the economy (with significant share of food and certain chemicals in total production, and low reliance on tourism), less restrictive containment measures and large government aid packages contributed to it being one of the smallest contractions in Europe. Industrial output overall remained broadly unchanged from 2019 [REDACTED].

Public debt has risen due to government measures to fight the effects of Covid-19. [REDACTED] To finance it, Serbia raised around €3 billion through two Eurobond issuances (a seven-year Eurobond in May 2020 and a 10-year Eurobond in November) and stepped up domestic borrowing. The public debt ratio rose to 58 per cent of GDP as of end-2020, around five percentage points higher than at the end of 2019. In February 2021, the country raised another €1.0 billion in 12-year Eurobond (1.65 per cent coupon, 1.9 per cent yield), which will be used to repay maturing debt and support economic growth.

Notwithstanding the recent shock caused by the Covid-19 crisis, the long-term outlook for Serbia remains resilient. On 15 March 2021, Moody's upgraded the sovereign rating for Serbia from Ba3 to Ba2, changing the outlook from positive to stable. Both Fitch and S&P affirmed Serbia sovereign rating at BB+/Stable. EBRD's latest internal forecast envisages recovery with the GDP growth at 3 per cent in 2021 (EBRD September 2020 forecast). [REDACTED]

3.2 IMPLEMENTING ENTITY

The MoEP will be in charge of overall project implementation. The PIU team also includes experienced representatives of the DH Company and will be supported by independent PIU support consultants and supervision engineers. The PIU will be responsible for daily management, administration, procurement and monitoring of project implementation. The ownership structure is presented in Annex 2.

3.3 PROJECT ENTITY

The DH Company, Energetika, is a state-owned company and a sole provider of DH services in the City of Kragujevac. The number of households connected to DH system is 20,864 households (41 per cent of the City's households), while the area of residential space heated is 1,555,721m². The DH Company also supplies heat to 1,118 commercial

customers. The boiler houses are situated at six locations in the City and have a capacity of 433MWt, while the total length of the distributive network is 63km.

The Project will be implemented at the largest (304MW) and the oldest boiler house Zastava, located in the city centre, where 241MW is supplied by three [REDACTED] coal boilers which were installed in the 1970s [REDACTED]. The remaining Zastava's capacity (63MW) is supplied by two 60 year old boilers which are using natural gas since their latest reconstruction. In addition to Zastava, there are five other boiler houses with a total capacity of 129MW which use natural gas as the primary energy source.

4. MARKET CONTEXT

The DH sector in Serbia is heavily dependent upon fossil fuels with the ratio of 99.99 per cent (natural gas 81.55 per cent, mazut 9.66 per cent, and coal 8.79 per cent) and only 0.01 per cent is fuelled by wood biomass. This results in extensive harmful annual emissions of 1,588,350 tonnes of CO₂, 9,480 kg of NO_x, 494 tonnes of PM, and 5,450 tonnes of SO₂. According to the official data, approximately 640,000 households out of total 2,500,000 are connected to DH system (25.6 per cent). This represents 48 per cent of households in urban areas / cities.

In 2019, the EBRD established the Renewable District Energy in the Western Balkans (“**ReDEWeB**”) Programme. The key objective of ReDEWeB is to support the establishment of a market for ReDE investments through a range of measures including enabling integration of ReDE into energy and urban plans of municipalities, preparing preliminary designs and feasibility studies, and establishing policy frameworks that incentivize the private sector to prepare and submit self-initiated proposals for developing ReDE infrastructure. ReDEWeB has been supported by the Austrian Government in the amount of EUR 4 million for technical assistance for WB region, as well as by SECO in the amount of EUR 8.5 million for both technical assistance and investment grants to be utilised in Serbia only.

EBRD and ReDEWeB are already working with five Serbian cities to develop renewable energy projects (based on solar thermal, heat pumps utilising heat from wastewater treatment facilities, geothermal, etc), while *Expression of Interest* to join the programme has been received by additional four municipalities, including Kragujevac. The Bank signed an MoU with the MoME in March 2021 and agreed to work on the development of a *Renewable District Energy Programme in Serbia* focusing on policy reforms and support for project development and implementation. As part of the Programme, the Bank will assist, among else, with the development of relevant bylaws to the Law on Renewable Sources to incentivise the uptake of renewable heat generation for DH in Serbia.

Currently, only 41 per cent of households in Kragujevac are connected to the DH system. This indicates a significant opportunity to extend the DH network further and connect additional consumers such as multi-family apartments and commercial/public sector buildings that currently use inefficient and highly polluting individual boilers. The replacement of old inefficient coal-based boilers by modern natural gas boilers will

have the greatest short to medium-term impact on urban air quality and will provide immediate environmental improvements at acceptable economic costs, while, in parallel, significant efforts shall be invested towards further decarbonisation of DH systems and the introduction of renewable energy DH projects. This will allow additional network expansion, which will enable further improvements in local air quality.

5. FINANCIAL / ECONOMIC ANALYSIS

5.1 ECONOMIC ANALYSIS

[REDACTED]

5.2 SENSITIVITY ANALYSIS

[REDACTED]

5.3 PROJECTED PROFITABILITY FOR THE BANK

[REDACTED].

6. OTHER KEY CONSIDERATIONS

6.1 ENVIRONMENTAL AND SOCIAL

Categorised B (2019 ESP). The environmental and social due diligence (“**ESDD**”) for Tranche 1 was carried out by an independent consultant in accordance with ESD Covid-19 guidance; it included a review of an information package supplied by the client and site visits (by a local team due to COVID-19 travel restrictions) of the boilers site. The environmental and social (“**E&S**”) risks and impacts associated with providing a loan for the replacement of coal boilers by gas boilers (total capacity of 110MW) are site-specific, readily identified and will be managed by the implementation of a robust ESAP. ESDD confirmed that the Tranche 1 Project is structured to meet EBRD PRs.

The results of the ESDD indicated that the DH Company operates in line with Serbian requirements; it will nevertheless be required to align its corporate E&S management systems with the Bank’s Performance Requirements. The main E&S risks are (i) the storage of ash (produced as a result of burning coal for the existing boilers) at the main plant; (ii) air emissions from the future gas boilers (and overall alignment with EU Best Available Techniques (“**BAT**”), since compliance of the design documents with EU IED Directive’s criteria for large combustion plant (based on aggregated capacity) has to be confirmed; and (iii) potential collective dismissal for some manual labour workers due to Project implementation. These last two risks will be managed through the ESAP which has been agreed with the Client [REDACTED]. A Technical Cooperation (“**TC**”) screening study will be developed to identify options for recycling and disposal of fly ash and slag; the preferred option will be subject to a dedicated ESDD before Tranche 2 is committed. Overall, the Project is expected to result in a reduction of CO₂ emissions of about 60,000 t/a.

The DH Company has a management structure in place to ensure compliance with national regulation. The national Environment Impact Assessment (“EIA”) is being developed by the DH Company to obtain an environmental permit for the Project. The ESAP requires the development of an integrated Health, Safety, Social and Environmental (“HSSE”) management system, as well as a Construction Environmental Management Plan (“CEMP”) for the gas boilers and a Decommissioning Plan for the coal boilers.

The DH Company’s HR policies are compliant with national legislation and main ILO conventions. It has signed two collective bargaining agreements with two active Unions; according to the ESDD, the DH Company is cooperating well with the Unions. It currently employs 380 persons; 120 are engaged as manual labour workers. [REDACTED] The ESAP requires DH Company to develop a Retrenchment Plan in line with PR2 for EBRD review.

Reports on emissions to air and wastewater quality are regularly submitted by the DH Company to the national Environmental Protection Agency; some non-compliance has been observed. It is not unusual for old coal fired boilers to not comply with the national regulations on air pollutants emissions; the coal boilers in the main location Zastava will be replaced as part of the Project. Similarly, wastewater discharged from Zastava are 100 per cent generated by the old coal fired technology; it will be replaced by natural gas and hot water (not steam), which is another benefit of the Project. The requirement that the gas boilers final design specifications include alignment with the EU Best Available Techniques (as described in the Large Combustion Plant BAT Conclusions) will be covenanted. Physical improvements to waste storage and segregation on site are captured in the ESAP, following inadequate waste management practice that was identified during the site visit.

The main environmental concern from the Project is an ash pile stored outdoor at main plant (approx. 40,000 tonnes) 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. Complaints have been received by the DH Company with regards to this issue, from both employees and the nearby general public. The Project will help addressing this issue by (i) stopping the production of slags and ashes by the replacement of coal boilers under Tranche 1, and (ii) identifying the most appropriate option for the safe recycling/disposal of the ashes (TC approved by Grant Review on 27 April 2021) and financing the implementation of this option under Tranche 2. An additional dedicated ESDD will be conducted on Tranche 2 option, and the ESAP will be revised accordingly. The ESAP also requires a site wide risk-based intrusive ground investigation to ascertain the extent of soil/groundwater contamination once the ash has been removed. Previously, disposal has also been made to landfill sites (offsite) and private land plots; some of them are currently under rehabilitation.

The H&S team at the DH Company appears well resourced. A programme of risk assessments is in place, and a program of safety audits is undertaken by a team in the Safety Department. No formal process for monitoring contractor H&S performance was identified during ESDD, and a respective corrective action is included in the ESAP. It

is unlikely that asbestos is present in the Zastava building, since it was rebuilt in 1999. The ESAP also requires to install automatic leakage detections systems in all facilities that utilise natural gas, and to develop and implement a Plan to control and/or reduce methane leakages.

The Project involves the installation of boilers within the boundaries of the existing site in an urban and industrial context; additional land is not required to replace the boilers. The Project is not expected to have an impact on biodiversity (there is no protected area in the vicinity of the site) nor on cultural heritage. A grievance mechanism process is currently in place and is available on the company's website. The DH Company received 646 complaints over the past 3 years; the majority of complaints were related to the poor air quality caused in the City by their coal-fired boilers. A Stakeholder Engagement Plan (“**SEP**”) has been developed during ESDD. The SEP and a Non-Technical Summary (“**NTS**”) will be disclosed by the Company.

Due to the sector and risks identified during ESDD for this Project, the Bank will monitor closely the implementation of the ESAP, through review of annual Environmental and Social Reports (“**AESR**”) as well communications with the DH Company and site visits, as necessary.

6.2 INTEGRITY

Integrity due diligence was undertaken on the Ministry of Finance, the Ministry of Environmental Protection, the DH Company, and senior management. The review did not identify any material integrity concerns, and it was therefore concluded that this project does not pose an unacceptable reputational or integrity risk to the Bank.

All actions required by applicable EBRD procedures relevant to the prevention of money laundering, terrorist financing and other integrity issues have been taken with respect to the Project, and the project files contain the integrity checklists and other required documentation which have been properly and accurately completed to proceed with the Project.

ANNEXES TO OPERATION REPORT

ANNEX 1	Serbia: Sovereign Debt Assessment
ANNEX 2	Shareholding Structure
ANNEX 3	Project Implementation
ANNEX 4	Economic Assessment
ANNEX 5	Decarbonisation Pathway of Kragujevac DH Company

ANNEX 1 - SERBIA SOVEREIGN DEBT ASSESSMENT

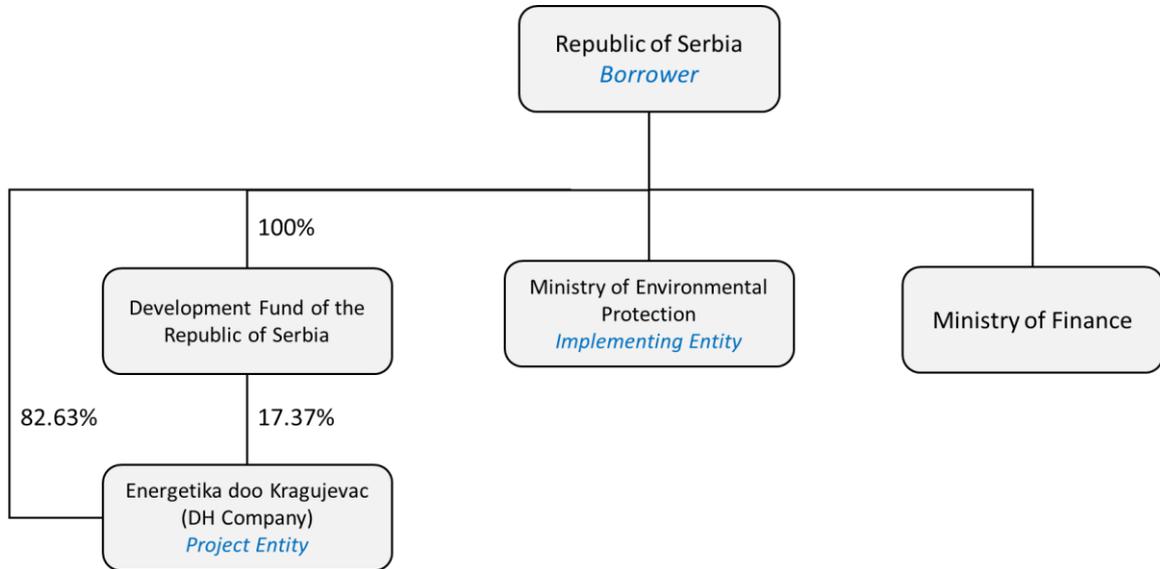
Despite a significant fall since 2015, Serbia's public debt remained above the legally binding limit (45 per cent of GDP) and in 2020 started to increase due to government measures to fight the effects of Covid-19. At end-2020, its debt, which is composed mostly of foreign currency (70 per cent), stood at 58 per cent of GDP. [REDACTED]. As a response to the Covid 19 crisis, the government implemented aid packages in 2020 worth EUR 5.8 billion. [REDACTED]

After two large packages in 2020, the government has announced another set of measures in 2021. The government's Covid 19 crisis response measures in 2020 were focused on support for businesses, healthcare and citizens, among the rest: (i) a large aid package announced, consisting of fiscal measures (postponed payment of social security contributions and payroll tax for at least 3 months; delayed advance corporate income tax payments for Q2 2020), direct private sector support (payment of three minimum wages to entrepreneurs and MSMEs; subsidy at 50 per cent of the minimum net wage to large businesses) and liquidity enhancement (primarily state guarantees for EUR 2 billion new loans); (ii) Central bank providing additional local currency and FX liquidity to banks through EUR/RSD swap auctions and additional repo auctions (recently collateral has been changed to include corporate bonds of adequate quality); (iii) Lifted restriction on the share of government FX securities in the DIA portfolio during emergency state, and (iv) one-off assistance to adults (EUR 100) and 10 per cent increase in salaries of medical staff from 1 April. In February 2021, the government has announced a new package of measures, worth around EUR 2.0 billion. The package includes one-off financial assistance to adults, direct assistance to SMEs, transport sector, and expansion of loan guarantee scheme. The main objection to the package is its non-selectiveness in helping citizens and businesses. [REDACTED]

Key macroeconomic indicators for Serbia are presented below:

[REDACTED]

ANNEX 2 - SHAREHOLDING STRUCTURE



ANNEX 3 - PROJECT IMPLEMENTATION

Procurement classification – *Public sub-sovereign*

[REDACTED] The Project envisages two tranches (1st tranche committed and the 2nd uncommitted) to be implemented by Serbian MoEP, where the PIU will be sited, supported by the Kragujevac DH Company as ultimate beneficiary of the Project.

[REDACTED] To mitigate such risks the PIU will be supported by a PIU support consultant and an independent Supervision Engineer, appointed competitively in accordance with the EBRD Procurement Policies and Rules (“PPR”). [REDACTED]

The scope of the contracts to be covered by the Project are not technically challenging. [REDACTED] The risk will be partially mitigated by the PIUs support consultant who is tasked to review the technical requirement and do a market research. [REDACTED]

Procurement arrangements:

The Project is classified as a public sector operation for procurement purposes.

The works contracts financed under the Project will be procured through Single Stage Open Tendering procedures in accordance with the PPR for the public sector and using Bank’s Standard Tender Documents. [REDACTED].

The PIU Support consultancy and Supervision assignments will be procured through competitive selection in accordance with Chapter 5 of the PPR.

All contracts financed under the Project will be subject to the Bank’s prior review in accordance with the PP&R. [REDACTED]

ANNEX 4 - ECONOMIC ASSESMENT

[REDACTED]

**ANNEX 5 - DECARBONISATION PATHWAYS FOR THE
Kragujevac DH System**

[REDACTED]