

# NS-40 - Construction of a Super-critical Lignite Power Plant TTP Kostolac B

## Serbia

### NAMA Seeking Support for Implementation

#### A Overview

A.1 Party	<input type="text" value="Serbia"/>
A.2 Title of Mitigation Action	Construction of a Super-critical Lignite Power Plant TTP Kostolac B
A.3 Description of mitigation action	Construction of a new lignite fired thermal power plant in TPP Kostolac B. The new unit, called block B3, will have an installed capacity of 600 MWe with net efficiency of 40.8%, which is significantly higher than 33.5% efficiency of a conventional lignite power plant in Serbia. The project will introduce a super-critical steam power generation technology.
A.4 Sector	<input checked="" type="checkbox"/> Energy supply <input type="checkbox"/> Residential and Commercial buildings <input type="checkbox"/> Agriculture <input type="checkbox"/> Waste management <input type="checkbox"/> Transport and its Infrastructure <input type="checkbox"/> Industry <input type="checkbox"/> Forestry <input type="checkbox"/> Other <input type="text"/>
A.5 Technology	<input type="checkbox"/> Bioenergy <input checked="" type="checkbox"/> Energy Efficiency <input type="checkbox"/> Hydropower <input type="checkbox"/> Wind energy <input type="checkbox"/> Carbon Capture and Storage <input type="checkbox"/> Land fill gas collection <input type="checkbox"/> Cleaner Fuels <input type="checkbox"/> Geothermal energy <input type="checkbox"/> Solar energy <input type="checkbox"/> Ocean energy <input type="checkbox"/> Low till / No till <input type="checkbox"/> Other <input type="text"/>
A.6 Type of action	<input checked="" type="checkbox"/> National/ Sectoral goal <input checked="" type="checkbox"/> Strategy <input type="checkbox"/> National/Sectoral policy or program <input type="checkbox"/> Project: Investment in machinery <input checked="" type="checkbox"/> Project: Investment in infrastructure <input type="checkbox"/> Project: Other <input type="checkbox"/> Other <input type="text"/>
A.7 Greenhouse gases covered by the action	<input type="checkbox"/> CO2 <input type="checkbox"/> N2O <input type="checkbox"/> PFCs <input type="checkbox"/> CH4 <input type="checkbox"/> HFCs <input type="checkbox"/> SF6 <input type="checkbox"/> Other <input type="text"/>

#### B National Implementing Entity

B.1.0 Name	Public Enterprise Electric Power Industry of Serbia
B.1.1 Contact Person 1	Aleksandar Obradovic, General Manager, A.I.
B.1.2 Address	Balkanska 13, Belgrade

B.1.3	Phone	+381 11 2024 600
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B.1.5	Contact Person 2	
B.1.6	Address	
B.1.7	Phone	
B.1.8	Email	
B.1.9	Contact Person 3	
B.1.10	Address	
B.1.11	Phone	
B.1.12	Email	
B.1.13	Comments	

**C Expected timeframe for the implementation of the mitigation action**

C.1	Number of years for completion	6
C.2	Expected start year of implementation	2015

**D Currency**

D.1	Used Currency	<input type="text" value="AED"/>
		Conversion to USD: 1

**E Cost**

E.1.1	Estimated full cost of implementation	954000000
E.1.2	Comments on full cost of implementation	
E.2.1	Estimated incremental cost of implementation	
E.2.2	Comments on estimated incremental cost of implementation	

**F Support required for the implementation the mitigation action**

F.1.1	Amount of Financial support	954000000
F.1.2	Type of required Financial support	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Loan (sovereign) <input type="checkbox"/> Loan (Private) <input checked="" type="checkbox"/> Concessional loan <input type="checkbox"/> Other <input type="text"/>
		<input type="checkbox"/> Guarantee <input checked="" type="checkbox"/> Equity <input checked="" type="checkbox"/> Carbon finance
F.1.3	Comments on Financial support	EPS is open for various solutions regarding the finance of the project as stated in F.1.2.
F.2.1	Amount of Technological support	954000000
F.2.2	Comments on Technological support	Amount of the Technology support will be determined later, after finalisation of the Feasibility Study.
F.3.1	Amount of capacity building support	
F.3.2	Type of required capacity building support	<input type="checkbox"/> Individual level <input type="checkbox"/> Institutional level <input type="checkbox"/> Systemic level <input checked="" type="checkbox"/> Other <input type="text" value="Human Capital"/>
F.3.3	Comments on Capacity Building support	Estimated amount for capacity building is 2% of the total investment (such as training of stuff in the countru of technology origin, et c...)
F.4	Financial support for implementation required	<input type="checkbox"/>
F.5	Technological support for implementation required	<input type="checkbox"/>
F.6	Capacity Building support for implementation required	<input type="checkbox"/>

## G Estimated emission reductions

G.1 Amount	56.00
G.2 Unit	MtCO <sub>2</sub> e
G.3 Additional information (e.g. if available, information on the methodological approach followed)	Estimation is calculated based on 40 years of technical life time of instalation

## H Other indicators

H.1 Other indicators of implementation	Pre-Feasibility Study and General Design is completed
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## I Other relevant information

I.1 Other relevant information including co-benefits for local sustainable development	<p>Implementation of the NAMA is meeting majority of the Sustainable Development Indicators in accordance with tree criterion indicated in appendix of the Serbian DNA Rules of procedure. According to the economic criterion, it satisfies following fields: 1. Investing conditions - Construction of the new TPP will be carried out through strategic partnership of EPS and power utility that will be selected on the international tender. EPS would participate with up to 49% of the capital, while the strategic partner would provide the rest of investments. 2. Sustainable technology transfer - Final technological solution is not been defined yet, but it is anticipated that TPP Kostolac B3 will be unit of the modern construction with supercritical steam parameters, which represent the best available technology at this point. 3. Economic development of the region - Construction of the TPP Kostolac B3 will bring construction of new infrastructure; it also contributes to the power system stability and supply security, which consequently have effect on the stability of the prices for electric energy. 4. Employment - Construction of the TPP Kostolac B3 will provide work for many domestic companies. After commissioning and connection to the network, new work places will be available at the power plant and following facilities, as well as the chance for engagement of the companies from the sector of services and maintenance on long-term basis. 5. Priorities of the sector - Power generation at the TPP Kostolac B3 will contribute to the power system stability and supply security, which represent one of the priorities in the energy sector. 6. Consumption and generation - Power generation at the new power plant will reduce need for electricity import, and its modern concept will reduce waste production per unit of generated energy as well as waste management in ecology acceptable manner. According to the social criterion, it satisfies following fields: 1. Participation of the interested parties - Project TPP Kostolac B3 will be implemented with strategic partner on mutual benefit. Strategic partner will provide technology and financing, while EPS will provide fuel supply, existing infrastructure, and part of the funds. Implementation of this project includes participation of every governmental structure from the state to the local level, which supporting project due to its many advantages. 2. Life conditions improvement - Project implementation of such scope, lead up to the employment increase, as well as income increase, on the local and regional level. KOSTOLAC_B3 4 / 4 3. Capacity increase - According to the work needs and modern equipment maintenance, strategic partner will provide training for the employees, as well as expertise and tools for local companies engaged on this implementation of the project during its</p>
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operational life. According to the environment and natural resources criteria, it satisfies following fields: 1. Energy resources – Generation of TPP Kostolac B3 will, due to the higher energy efficiency of the plant, reduce coal consumption for power generation, and significantly reduce need for electricity import. 2. Air - Due to the application of the modern technology and higher energy efficiency of the plant, project will result in reduced emission levels of CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub>, comparing to the existing thermo power plants in Serbia. 3. Water - Contribution to the sustainable water use would be the application of measures for water treatment of all water quantities used in the technological process of electricity generation. 4. Soil - New thermo power plant will be constructed on the location of TPP Kostolac B3, where already exist land for this purpose, as well as joint systems, so it would not be necessary to change the purpose of the land. In addition, ash disposal will be at the area anticipated for this purpose with application of the reclamation measures. 5. Biodiversity – Whether the ash disposal will be at the area reserved for that purpose or at the area of the open pit mines of EPS - biological reclamation measures will contribute to the preservation of plants and increase of wooded areas. 6. Natural resources - Modern concept of the unit TPP Kostolac B3 will significantly contribute to the sustainable use of mineral resources, because energy efficiency of primary energy transformation ( $\approx 45\%$ ) will be significantly higher than at existing thermal power plants in Serbia. Exploitation life of domestic lignite deposits is extended that way.

**J Relevant National Policies strategies, plans and programmes and/or other mitigation action**

J.1	Relevant National Policies	<a href="http://www.merz.gov.rs/en">http://www.merz.gov.rs/en</a>
J.2	Link to other NAMAs	.

**K Attachments**

K	Attachments	<b>Title</b>	<b>Description</b>
K.1	Attachment description		
K.2	File	<input type="text"/>	<input type="button" value="Browse..."/>

**L Support received**

L.1 Outside the Registry	L.2 Within the Registry	<b>Support provided</b>	<b>SupportType</b>	<b>Amount</b>	<b>Comment</b>	<b>Date</b>