

## **ANSWERS TO ROMANIA'S QUESTIONS/COMMENTS REGARDING THE UNIT B3 CONSTRUCTION PROJECT AT THE KOSTOLAC LOCATION**

### **QUESTION 1.**

The Romanian interested public and authorities are concerned about the possible impact of the project on the air quality in the Romanian neighbourhood of Kostolac, in the context of emissions of pollutants into the atmosphere from the new thermal power plant. Although projected within the limits allowed by Directive 2010/75 I EU on industrial emissions, these emissions can contribute, in a transboundary context, to the degradation of air quality in the Danube border area of Caras - Severin County in Romania.

Romania considers that reducing the likelihood of a significant negative cross-border impact, especially on air quality, would be closely related to a possible comparative analysis of the sets (projected measures to reduce pollutant emissions in the atmosphere - Emissions of pollutants into the atmosphere) in relation to the best available techniques for emission reductions - emission levels associated with Best Available Techniques presented in the Best Available Techniques Reference Document for Large Combustion Plants - Draft Final June 2016, developed by the Joint Research Center - the European Institute for Prospective Technological Studies (Sustainable Production and Consumption Unit) - the European IPPC Bureau, coordinated by the European Commission. Details concerning this subject are presented below:

a) The projected emission limit values for sulphur dioxide, nitrogen oxides and particulate matter exceed the emission levels associated with the best available techniques for new lignite-fired power plants presented in the Best Available Techniques Reference Document for Large Combustion Plants, listed below:

- SO<sub>2</sub>: 10-75 mg/Nm<sup>3</sup> Annual average; 25-110 mg/Nm<sup>3</sup> Daily average
- NO<sub>x</sub>: 50-85 mg/Nm<sup>3</sup> Annual average; 80-125 mg/Nm<sup>3</sup> Daily average
- PM: 2-5 mg/Nm<sup>3</sup> Annual average; 3-10 mg/Nm<sup>3</sup> Daily average

b) The project does not foresee the implementation of secondary measures to reduce nitrogen oxides (NO<sub>x</sub>) emissions in order to achieve the emission levels associated with the best available techniques for new lignite-fired power plants presented in the Best Available Techniques Reference Document for Large Combustion Plants. For example, the selective catalytic reduction (SCR) process is widely applied to reduce nitrogen oxides in combustion gases from large combustion plants in Europe and other countries around the world.

c) The values for heavy metals emissions associated with the project were not specified. These are needed to assess compliance with air quality standards. Thus, for newly built power plants using lignite as a fuel, the Best Available Techniques Reference Document for Large Combustion Plants, sets for mercury emission limit values, an interval between 1-4 µg/Nm<sup>3</sup>

### **ANSWER 1**

#### **National legislation**

TPP Kostolac B3 unit has been designed in accordance with the applicable national legislation in the field of environmental protection. When talking about emissions of air pollutants, the plant is designed with emissions in line with the ELVs defined by the *Regulation stipulating Air Emissions Limit Values for Pollutants from Combustion Plants*.

## **International obligations**

By signing the Energy Community Treaty, the Republic of Serbia has committed to, *inter alia*, implement certain environmental regulations. In the field of air protection, obligations applicable to the new TPP Kostolac B3 unit are related to the application of the Industrial Emissions Directive - Chapter III as of 1 January 2018. The new unit has been designed in such a way to comply with ELVs prescribed by IED - Chapter III and the corresponding Annex V.

## **EU integration process**

New draft LCP BREF document is available. According to practice, once the new BREF document has been adopted, negotiations with EU Member States commence relating to the revision of legislation in line with the new conclusion proposals given by BREF or emission limit values from large combustion plants, as well as deadlines for their achievement. On the basis of the final arrangements, new EU directives are prepared and adopted defining emission limit values applying to the "new" and "existing" facilities. This also entails changing/shifting the time limits defining the status of facilities (new - existing).

EU accession process of the Republic of Serbia is in progress, which involves an obligation to harmonize national legislation with the relevant EU regulations, including environmental regulations. In addition to the transposition of EU legislation into the national law, during the negotiations, time limits for the compliance of individual plants with the relevant EU regulations will be defined.

Accordingly, the Republic of Serbia will also enter negotiations regarding its commitments to comply with new ELVs for its facilities, as well as the schedule to implement these changes. It can be expected that during the operating life of the Unit B3 some upgrades/modernisations of individual systems will be necessary relating to limiting pollutant emissions. In this regard, the Unit B3 Project provides for the modernisation of the technical solution by installing the following systems:

- NO<sub>x</sub> emissions reduction system through secondary measures, based on the selective catalytic reductions (as indicated in the Study)
- CO<sub>2</sub> emissions reduction system – area left inside the unit B3 location to construction this system, when some technology is commercially available, depending on obligations agreed at the level of the Republic of Serbia, regarding CO<sub>2</sub> emissions
- Following the heavy metals flue gas content measurements once the unit B3 has been commissioned, the need to introduce measures for their reduction will be established.

The design solutions for sulphur oxides and dust emissions reduction can be modernised to achieve higher emissions reduction efficiency.

## **QUESTION 2**

The project vulnerabilities regarding climate change were not assessed. In 2014, the Drmno mine was flooded twice with major consequences on the environment and the capacity of ensuring a stable electricity production. Analysis should be carried out on the likelihood of flooding, potential adverse effects and preventive measures applied. It should also be examined whether, in dry seasons, there is a risk of conflicts over water use.

## **ANSWER 2**

Unit B3 location is not at risk from flooding. Analysis of the Drmno mine vulnerability is not within the scope of the Study. There is a separate study, analysing environmental impacts of the Drmno mine operations.

### **QUESTION 3**

Page 8 - 2. 3 Compliance of the project with the spatial planning documentation “The Assembly of Pozarevac made a Decision adopting and implementing the spatial plan for the TPP Drmno on 28 September 1982 (Off. Gazette of the Municipality Pozarevac, No.13182). Furthermore, it also adopted a Decision implementing the Spatial Plan for the TPP Drmno area on 31 October 2006, stipulating that the Spatial Plan of the TPP Drmno (Off. Gazette of the Municipality Pozarevac, No.13/82) remains fully valid. The Serbian Government adopted a Decree establishing the Spatial Plan for the Special Purpose Area of the Kostolac Mining Basin (SPSP), published in the Official Gazette RS, No. 1 I 13. SPSP for the Kostolac Mining Basin establishes the basic concept of development, utilization, organization, planning and improvement of the area for the period until 2022.”

This urban plan was not subject to a strategic environmental assessment procedure either at national level or in a cross-border context, mandatory under the provisions of the SEA Protocol (in Kiev), just like the Serbian Energy Strategy in which the unit 83 construction project at the Kostolac thermal power plant is comprised, has not benefited from a strategic environmental assessment. The Espoo Convention Implementation Committee and the Kiev Protocol are currently investigating this issue (more details in the Implementation Committee report of September 2016) and expressly requests Serbia to provide information on the impact on both the environment and the health of the population of these programs. Moreover, the urban plan referred to above also aims at increasing the production capacity of the Drmno lignite mine, which supplies fuel to the Kostolac thermal power plant, from 9 million Tons today to 12 million Tons of lignite per year. This increase in production has not been subject to an environmental impact assessment.

Therefore, we believe that the legal steps that Serbia should have taken to align with international law in the matter have not been respected.

In addition, the environmental impact has to be assessed cumulatively - both the impact of the construction of a new unit and the expansion of the open-pit mining activity.

### **ANSWER 3**

Answer provided in Attachment 1.

### **QUESTION 4**

Pages 193- 195, Section 3.3. 7. Cumulative influence of work of OCM Drmno and TPP Kostolac  
The cumulative impact on water sources is mentioned, but there is no analysis.

### **ANSWER 4**

The Study concluded that the measurements had not recorded any mine water impacts to the cooling water quality with which it is mixed. For this reason, further analyses were not conducted.

### **QUESTION 5**

Page 203, Section 4.1 Version for the power and technical solution of the unit

For the alternatives to the 400 and 500 MW capacities, mentioned in the report as being taken into account, the emission limit values presented are not in line with the Directive on Industrial Emissions, Annex V, Part II, which has been transposed into Serbia's legislation. In addition, alternatives to the project using different fuels as well as different locations should be considered, based on the demand for thermal agent.

## ANSWER 5

Unit B3 has been designed as a planned capacity increase of the TPP Kostolac B. Therefore, assessing fuel and location alternatives is not applicable in the case of this project. Unit capacity was analysed by taking into account the remaining coal reserves from the Drmno mine, which is the only fuel source for the TPP Kostolac B.

## QUESTION 6

Page 208 - Table 5.1-2: Maximal permitted concentration of the pollutants into air (aim values for human health protection and in case of dedicated measuring)

Emissions of heavy metals into the atmosphere are provided only as a limit required by the legislation in force - the Air Quality Directive. The document does not present measurements of these pollutants, it does not indicate whether these limits are currently being met or provide a modelling for the proposed new unit showing its specific emissions.

## ANSWER 6

Following the heavy metals flue gas content measurements once the unit B3 has been commissioned, the need to introduce measures for their reduction will be established.

## QUESTION 7

Pages 217-218 Tables maximal and mean monthly daily values of PM10 concentration into the air 2013-2015

From the values provided, long series of data are missing:

- In 2013, there are no data for four consecutive months, from September to December.
- In 2015, there are no data for January, February, March and December.

We consider that the lack of these measurements leads to an erroneous conclusion on the annual average of particulate matter (PM10), which is even more worrying as it is known that these values tend to be higher in the winter months as a result of the inversion phenomenon of the temperature. Independent measurements made by Bankwatch with a certified analyser (GRIMM EDM164) for a period of one month between November 17 and December 16, 2016, even in the village of Drmno, where the lignite mine is located and in the immediate vicinity of the Kostolac B plant, showed that the daily values for PM10 were exceeded in 16 of the 30 days monitored. Values for PM2.5 have been steadily above the limit of 20 µg/m<sup>3</sup> recommended by the World Health Organization (in 26 of the 30 days of measurements). The results of Bankwatch's independent measurements are available at <http://bankwatch.org/campaign/coal/airpollution>. Furthermore, the air quality monitoring station closest to the thermal plant does not even record PM values, but only CO and SO<sub>2</sub><sup>1</sup>

<sup>1</sup> <http://www.amskv.sepa.gov.rs/pregledpodataka.php?stanica=14>

## ANSWER 7

The Study indicated that the past measurements will not be used as reference measurements during Unit B3 operation (after 2020), bearing in mind that new air emissions reduction systems will be constructed on all of the Kostolac A and B units (reconstruction projects on all units are under way). Bankwatch measurements performed during Jan-Dec 2016, relating to PMs should be considered in light of the following facts:

- There is no necessary evidence about the measuring device (its calibration, measurement method applied, authorised institution that conducted the measurements);
- It has not been proven whether the measuring point is representative: the report stated that the measuring point is located in the village of Drmno, at a distance of 500 m from TPP Kostolac. TPP Kostolac B is located at a distance of over 1.5 km from the village of Drmno. Therefore, it is not clear where the measuring point exactly is. It is unlikely that the pollution of the measured

intensity can be registered from a 250 m high stack at a distance of 500 m. It is customary to indicate the exact measuring point location on a map and furnish details about it.

- Operating state of the TPP Kostolac A and B units throughout the measurement period has not been specified: engaged capacity, ESP operation, coal quality, etc.
- Weather conditions during the measurement period have not been indicated: wind direction and velocity, wind resistance, air temperature, cloud cover, precipitation, which are crucial to analyse the results.
- Operating status of the Drmno mine machinery during the measurement period has not been specified.
- PM content analysis has not been carried out (combustible, non-combustible, soluble, etc.).

In view of all of the missing data, authenticity of the presented measurements and sources resulting in these air pollution levels cannot be established.

## **QUESTION 8**

Page 283, Section 6.3.8. Impact on climate

It is recommended that the consistency of the 83 unit project with the 2050 Energy Roadmap of the European Union and the correlation with the Paris Agreement, as this document provides for decarbonisation of the energy sector by 2050 and Kostolac 83 would continue to operate at that time, to be analysed.

## **ANSWER 8**

Design solution of Unit B3 leaves space inside the unit location to build the CO<sub>2</sub> emission reduction system, when some technology becomes commercially available, and depending on the commitments agreed at the level of the Republic of Serbia in terms of CO<sub>2</sub> emissions reduction.

Please note that there is still no commercial technology to reduce CO<sub>2</sub> emissions, and that such measures have not yet been applied on much larger units (emitters) both inside the EU and internationally. Furthermore, the BREF document does not propose BAT for CO<sub>2</sub> emissions reduction. Unit B3 efficiency is in line with the new proposal set out in the LCP BREF (Final Draft 2016) document, which meets this requirement relating to CO<sub>2</sub> emission from the Unit B3.

Other obligations of Unit B3 that may arise in the future as a result of Serbia's obligations in terms of reducing CO<sub>2</sub> emissions are unknown at the moment.

## **QUESTION 9**

Page 285 - 6.3.12. Trans boundary pollution transport

The measurements used refer only to emissions of SO<sub>2</sub> and NO<sub>2</sub> during the period 2000-2013, without taking into account PM<sub>10</sub> and PM<sub>2.5</sub> particulate emissions, the latter being shown to have a significant cross-border impact, being airborne on distances of several hundred kilometres.

Moreover, the environmental impact assessment report does not provide a modelling of the future impact of the Kostolac 8 plant with the addition of a new production unit. A realistic analysis should present projections of the transboundary impact of all regulated pollutant emissions during the proposed new unit operation, cumulated with those of existing units.

## **ANSWER 9**

Bearing in mind that dust emission from Unit B3 will be very low (for a concentration of 10 mg/Nm<sup>3</sup>, amounting to 12 kg/h), their share in the cross-border transport is much smaller than in the case of other considered pollutants, as well as existing dust pollution sources. We believe that the cross-border transport of particles from the Unit B3 stack is negligible, as shown by the calculations of their air concentrations.

Similarly, under conditions when all emission reduction measures have been undertaken on LCP plants, pollution of an area is primarily caused by local sources, not cross-border transport, which is the objective of the legislation relating to ELVs.

Thus, for example, when sulphur oxides emissions in Serbia are reduced by about 95%, proportionally lower sulphur amounts will be deposited in Romania, compared to the values shown in Tables 6.3.12-3 and 6.3.12- 4 (in 2013, no FGD plant was in operation in Serbia).

The study will predict the share of Unit B3 in deposited sulphur and nitrogen amounts.

## **QUESTION 10**

Impact on Natura 2000 sites: On the Romanian side of the Danube, in the area of potential impact, there are two Natura 2000 sites: ROSCI 0206 Iron Gates and ROSPA0080 Almajului - Locvei Mountains. The impact on them has not been analysed.

## **ANSWER 10**

The area on the Romanian side of the Danube is included in the presented calculations relating to air propagation of pollutants up to a distance of about 30 km from Unit B3. Having in mind the foreseen pollution levels, operation of all of the TPP Kostolac A and B units will not exceed pollution levels in this area after 2020. Please note that the vegetation protection limit values have been defined only as mean annual values.

## **QUESTION 11**

At page 159, table 3.3.5-22, measurement units associated to the presented results need to be specified.

## **ANSWER 11**

Results indicated in Bq/kg.

## **QUESTION 12**

We would also ask for the relevant figures/images/diagrams which have only Serbian texts, to include their translation into English, in order to facilitate the good understanding.

Romania is looking forward to receiving the answers to all the above comments/observations and requests, coming from interested public and authorities with responsibilities for environmental protection, with regard to this project.

On this occasion, I express my willingness to continue the fruitful cooperation and please accept, Mr. Minister, the assurance of my highest consideration.

**ANSWER 12**

We believe that attachments do not furnish any additional information compared to what has been given in the English version of the Environmental Impact Assessment Study, which has been provided.