

# QUALITY REVIEW OF THE EIA

For the Porto Romano Thermal Power Plant

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## Executive Summary

The subject of this quality review is the Environmental Impact Assessment (EIA) study performed for the project of Porto Romano Thermal Power Plant sized for 1600 MWe gross power production.

The examined EIA report is incomplete. The most important part that the EIA report is lacking is at the same time the vital part of every EIA – the **Environmental Management** and **Monitoring Plan**. Even though *Chapter 8* of the EIA is titled as environmental monitoring plan, it does not contain a real plan neither for monitoring, nor for implementing mitigation measures and environmental management actions. There is no **social impacts** management Plan. Furthermore, there is no **waste management** plan, **hazardous waste management** plan, **decommissioning** plan, nor **emergency/accident response plan**, all of which should have been integral parts of the EIA.

The **Project Description** (*Chapter 4* of the EIA) fails to provide key data on natural **resource inputs** and **waste outputs** during the operation phase of the TPP. Table 4.4.2a on page 47, does not provide sufficient data on input materials and waste matter and waste energy emissions during operation. It considers only one input (coal) and four outputs. What are missing are **water** consumption, waste water quantities and thermal characteristics, and most importantly, **CO<sub>2</sub> emissions**.

Also in *Chapter 2*, there is an attempt to mislead the reader that the Porto Romano TPP will employ CO<sub>2</sub> capture and sequestration (CCS) in order to reduce the resulting CO<sub>2</sub> (See EIA section 2.2.1). However, it is highly unlikely that CCS can be commercially applied soon anywhere in the world, let alone at the Porto Romano site.

There is no real **analysis and comparison** of **Alternatives**. Instead, there is an attempt to justify the current project as the best solution (EIA *Chapter 2*). Instead of realistically comparing different solutions with their respective economic, social and environmental effects, the current project is being promoted as the best solution. There is no proper comparison between different

energy mix scenarios on the national level. There is an attempt to prove that further development of **hydro-energy** in Albania would be less economical and environmentally efficient than developing coal-power, without any proof for that claim.

Another argument that is used to justify the project is the fact the coal is a “cheap” fuel. However, considering the fact that there are no significant coal reserves in Albania, one can only conclude that the proposed project will actually increase Albania’s **(energy) dependence** on imported fuels.

The Albanian Energy Strategy is quoted and misinterpreted in order to justify development of coal-fired power plants in Albania. The Albanian Energy Strategy should have been properly analysed and interpreted. However, the strategy has been interpreted in a biased way. None of the quotations from the Energy Strategy given in the EIA really led to a conclusion that coal-powered TPPs should be favourable, but the EIA text tries to put it in such light. There was no alternatives analysis and comparison for this project, neither on the strategic level, nor on the local i.e. project level.

The **environmental impacts** have been estimated using inadequate input data and inappropriate assumptions (as shown in this review in the example of air quality impacts - *EIA section 6.1*, and Noise impacts - *EIA section 6.4*). On the same examples it is shown that the receptors of these impacts (local population) are not well sufficiently analysed and described.

The **socioeconomic impacts** have not been analysed at all. Instead, the EIA promotes its assumptions that the overall socioeconomic impacts will be beneficial for the local population and on the national level, without any baseline analysis, any cost-benefit analysis, nor any project-related surveys made in the local settlements and towns (as discussed for the *EIA section 6.9*). Without any analysis or plans to enhance the positive socioeconomic impacts locally, it is most likely that the economic benefits will be limited for the investor, while the social and environmental negative impacts will have to be taken by the local population.

## Detailed Analysis

### EIA Chapter 2: “Motivation of the Proposed Project”

The EIA Chapter 2 (pp 16 to 22) “Motivation of the Proposed Project” is an attempt to justify the reason of constructing a coal-fired thermal power-plant (TPP) at the location near Durres as a necessary part of the solution for the country’s energy needs. However, the arguments for this case in the same chapter are not convincing enough, as follows:

On page 16, it is stated that in “Albania 99% of the total electricity output is generated by hydropower plants, however only 30% of the hydro potential is

used". This was supposed to be an argument for building coal and other fossil fuel powered power plants. However, in our opinion it is actually an argument that Albania has a potential to triple current its energy production from the hydro power sector alone, and it should be used as a case to stimulate this sector (especially mini-hydro power plants as they provide more sustainable and environmental friendly solutions that large hydro power plants).

In section 2.2 "Objectives of the Proposed Project" it is stated that the main "scope of the proposed Project is to build a new plant ... using an energy source common and cheap [i.e. coal]" (EIA p.18). However, there is no presentation of information that would confirm that the use of coal for this TPP will be "cheap". From other parts in the EIA we can conclude that the coal will be imported from abroad and transported by ships to the Porto Romano TPP. There should have been a cost-benefit analysis that would prove the claim that this energy source would be "cheap", and that the profits from the electricity produced would benefit the national and local economy. The CBA findings about proven financial benefits (if any) to the local economy should have been included in a socio-economic analysis in the EIA, which is presently also missing. The cost-benefit analysis should take into account how would the imports of coal affect the national economy (notably the foreign exchange balance), and it should prove that the profits from the additional electricity produced would

On the same page, the Albanian National Energy Strategy (2003) is quoted, as it recommends:

- increase of production capacity;
- replacement of low-energy services, including electricity saving;
- extension of transmission and distribution systems.

The need for increasing the production capacities in order to meet the current and expected needs is obvious, but it is still not an argument for promoting the unsustainable fossil fuel power sector. The second two points are also not arguments for promoting construction coal powered TPPs.

The Energy Strategy is again quoted in EIA section 3.7 in more detail (seven specific objectives of the strategy), but none of the specific objectives can justify promotion of coal TPPs construction. Only the 5<sup>th</sup> objective could be partly in favour because of the need to "Optimize the supply system" which means source diversification including coal, however, at the same time the 5<sup>th</sup> objective calls for "minimal environmental pollution" (EIA, p. 31) which is an argument against coal TPPs.

The EIA section 2.2.1 "The 'Clean Coal' Option" emphasises the investor's policy to achieve:

- correct and safe fuel management;
- increase in thermodynamic efficiency;
- forced reduction in polluting emissions.

The first two points are a matter of good practice in the energy sector, required in order to reduce production costs and maximize the investors' profits and are

common practice, with side-effect minor reductions of negative environmental impacts that a 1600 MWe coal power plant will cause locally and globally at the first place.

The third point, while worth praising, is a matter of compliance with EU environmental legislation with which Albania is currently harmonizing, and it is a set of measures that will enable the project to operate under the forthcoming legislative framework in Albania. Furthermore, these measures are good but common practice in technologies applied by EU countries, one of which the investor is originating from. Finally, same as in the above paragraph, these measures will only reduce negative impacts that could be avoided in case of investing into renewable energies installations rather than fossil fuels installations.

The title of the EIA section 2.2.2 (EIA, p.21) "CO<sub>2</sub> Capture and Sequestration" is deceiving, because there is no actual CO<sub>2</sub> Capture and Sequestration (CCS) planned for this project. First of all, the CCS technologies are still in experimental phases, and it is a question whether they will ever become commercially and environmentally viable. Secondly, an inexperienced reader might conclude from the title and actual contents of this section, that CO<sub>2</sub> from the Durres TPP will be captured and sequestered, which is not the case. From the text in this section after careful reading, it is obvious that the investor does not have sequestration units, nor an idea, let alone a concrete location in possession or under contract, where the CO<sub>2</sub> could be stored. An equally inconclusive section on CCS is repeated in section 4.3.2.7 (EIA, p.45).

#### **EIA Chapter 4: "The Project"**

In section 4.2.2 "Fuel", it is argued that "[c]oal is available in large quantity on the international market" (EIA p. 35). Here, we have to reiterate that it means that the plant will only increase Albania's energy dependency because of the need to import coal from foreign countries. It is also wrongly argued, without any factual support, that the transportation and use of natural gas would have bigger negative environmental impacts than transportation and use of coal in case of Albania.

In section 4.3 "Coal Fired Power Plant" it is stated that "(w)aste water streams will be collected, sent to waste water treatment plants, and finally discharged to the sea, in compliance with relevant regulatory requirements" (EIA, p.36). The EIA should prove that adequate waste water treatment plants (WWTPs), capable of treating chemicals specific for this TPP will be an integral part of the project and/or that additional WWTPs with adequate physical, chemical and biological processes are existing or contracted.

Section 4.3.2.1. "Coal Handling and Storage" states that the coal will be stored in two open-air piles, each one about 450 x 60 m, with a capacity of about 220,000 t" (EIA, p. 40). It does not, however, discuss the nature of the surface on which these piles will be located or whether there are any soil protection measures envisaged.

Section 4.3.2.2. "Water Supply and Treatment" is partly covering this issue, but not in sufficient detail. Several water treatment plants are described but insufficiently: the *Sea Water Desalination Plant; Demineralization Plant; Steam Condensate Treatment Plant; Waste Water Treatment Plant; as well as the Storm Water Collection Basins; Oil Separators; Effluent Treatment Plant; and Sewage Treatment Plant.*

All these units for water treatment should have been clearly presented with a flow diagram, as well as a situation map of appropriate scale and detail. Each unit should have been described in terms of inputs and outputs: amounts of water, specific chemicals and sludges coming into and out of each unit. Also the final amount, chemical composition and final destination of all effluent waters, sludges and residual chemicals should have been clearly presented. In the current description, it is impossible to know the amounts and chemical characteristics of effluent waters and sludges, nor the location for disposing the effluent sludges. The effluent water will be discharged into the sea, but at unspecified location. From such a poor description of the process it would be impossible for anyone to predict impacts, let alone design proper mitigation measures.

Similarly, the EIA section 4.3.2.3 "Ashes Storage and Handling System" - does not provide sufficient information in order to estimate the potential impacts of ashes. There is no estimation of monthly amounts of ashes produced, nor their final fate. It is only stated that ashes "could be removed by trucks or transferred by conveyor belt to the pier head, to be loaded on ships" (EIA, p.43). The further fate of the ashes is unidentified. This means that the ashes could be discharged anywhere. The environmental management plan should specify the final destinations and fate of the ashes.

Section 4.3.2.7 is a repetition of section 2.2.2 that misleads an inexperienced reader into belief that CCS will be applied at the Porto Romano TPP.

## **EIA Chapter 6: "Impacts Assessment"**

In **section 6.1. "Air"**, subsection 6.1.2. Operational Phase, it is stated that the CALMET-CALPUFF modeling system<sup>1</sup> adopted by U.S. EPA was used. The CALMET module is used for simulating methodological conditions on a given site, based on data from methodological stations in the vicinity of the site. The CALPUFF module is an atmospheric dispersion model that "simulates transport, dispersion, transformation and deposition of pollutants" (EIA, p. 178). There are several problems with information in subsection 6.1.2:

1) Subsection 6.1.2 describes the CALMET-CALPUFF modeling system, but does not sufficiently describe the assumptions that were made and the nature of the input data that were fed into the model by its users for the current purpose.

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<sup>1</sup> Version 5.8, available at [http://www.epa.gov/scram001/dispersion\\_prefrec.htm#calpuff](http://www.epa.gov/scram001/dispersion_prefrec.htm#calpuff) (EIA, p. 177)

2) Regarding input data, the only conclusion that can be made from the text in subsection 6.1.2 is that input data was drawn from two metrological stations: one in Durazzo (Durrës) that is at least 10km away from the TPP planned site, and one at the Tirana Airport that is at least 30 km away, according to the scale provided on the map in Figure 6.1.2.2a (EIA, p. 180). Considering the distance from the two metrological stations, it is highly questionable whether the input data is adequate. For further consideration, it is recommended to check against the recommendations given in the instructions for using the CALMET-CALPUFF model.

The EIA **section 6.4 “Noise”** does not describe the measurement and noise prediction points P1 to P7 as to what type of zones they belong to (e.g. residential, industrial etc.). There should have been a precise explanation of each measurement point as to why they were chosen and what types of buildings they represent. It is stated that in point 2 the noise from the TPP is predicted to be above permitted limits, however, it is not stated whether any noise abatement measures will be taken or not. On page 209, Table 6.4.2.4b presents expected noise levels (in dBA) in points P1 to P7 during the day during the operation of both energy production units, and Table 6.4.2.4c presents the expected levels during the night. It is not explained why would night-time noise levels from the energy units (as described in Table 6.4.2.3a on page 207) be significantly less than the levels during day-time. Most of the noise emitting units listed in table 6.4.2.3a will be operating on a 24-hourly basis, therefore it is not possible that the night time noise levels will be between 3 and 7 dBA, depending on the measuring point (please compare the values in the last column of Table 6.4.2.4 b and Table 6.4.2.4c on EIA page 209). Therefore, similarly as in the case of air quality impacts, the noise modeling was performed using wrong assumptions and the explanation of these assumptions were avoided.

Furthermore, from the map on EIA’s Figure 6.4.2.c, it seems that point 2 represents a residential building, which makes this issue even more important. A residential building in such close vicinity to the TPP should have been discussed not only in the section on noise impacts but also in all other environmental and social impacts. This is also true for points P4 to P7 (presumably P1 and P3 are not residential buildings, although this should have been explained and discussed as well). Apart from points P2 and P4 to P7, more detailed environmental and social analysis should have been done for other nearby settlements and more importantly any buildings of special purpose, such as schools, hospitals, kindergartens and similar facilities. From different maps in the EIA we could distinguish the following settlements: Kerreti, Shinavlyashi, Katundi-i-Ri, Shpitala, Sukti, Dzhafzójai, Durrës, and others that we could not decipher from the maps provided in the EIA<sup>2</sup>. As mentioned below, a full social analysis of the population in surrounding settlements and towns should have been performed and presented as an integral part of the present EIA, together with a social management plan.

In **section 6.9 “Socioeconomic framework”**, employment opportunities are envisaged. However, the Social Impact Assessment is “planned to be

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<sup>2</sup> Most of the maps (e.g. Figure 1.3a) used as a base in the EIA are Russian maps. Therefore we might have misspelled some of the above settlements.

performed" (EIA p. 224) at an unspecified date. A detailed Social Impact Assessment (SIA) should have been an integral part of the current EIA report. The SIA should have provided a detailed plan of employment both during the construction and operation phase, with a prediction on how many local population workers would be employed, with which skills. This is especially important for the Porto Romano area, as the EIA section 5.10 identifies high unemployment rates in Albania, especially among women and young between 16 and 34 years of age. It is highly unlikely that the local population, due to the fact that most of them are unregistered immigrants from the northern part of the country would be eligible to be employed by the investor. Secondly, due to the poor education levels within the local population it is highly unlikely that significant numbers of them would be employed, without appropriate training.

Therefore, the EIA (and SIA within) should have included detailed measures that would encourage local employment with a **comprehensive training programme**. Without these measures, and a full Social Impact Assessment, it is hard to envision "significant positive impacts on socioeconomic framework" (EIA, p. 79).

In EIA section 6.9.1 it is stated that "the presence of international contractors will also provide an indirect increase of revenue for local activities" (EIA, p. 224). However, it remains unclear which local services will benefit, and to what extent.

## **EIA Chapter 8: "Environmental Management Plan"**

This chapter does not provide specific monitoring neither mitigation measures. Rather, it is a "wish list" of general activities that might be implemented during the construction phase and operation phase. There is no Waste management plan, and no emergency response plan. The EIA report should have contained detailed monitoring and mitigation measures implementation plans in order to monitor and minimize impacts on the environment.

The EIA does not have an environmental management or monitoring plan. It also does not have a waste management plan, hazardous waste management plan or an accident response plan.

According to the Albanian Law No. 9010 on Solid Waste (as quoted in the EIA, page 26), the waste producers "are obliged to: **identify** appropriate **recycling** and processing **systems** in accordance with the type of technology they employ and the nature and amount of waste they create; collect and treat waste so as to ensure that subsequent processes of environmental waste management are properly handled; **separate waste** at the origin and collect it separately; establish a **monitoring system** and **publish** the monitoring **data every 3 months**... [and] must elaborate technical, technological and organizational waste **plans**". The EIA should have identified the input and output composition and quantities of natural resources and waste streams and presented detailed plans for collection transportation and treatment of these waste streams.

According to the Albanian Law No. 9537 on Hazardous Waste Management (as quoted in the EIA, pages 26 and 27), the producer has to: “put in place a **written programme** to reduce the volume, quantity and toxicity of hazardous waste; be responsible for the **costs of transport, disposal or recovery** of the hazardous waste that it generates; transfer hazardous waste only accompanied by a consignment note and only to an **authorised operator**; avoid mixing hazardous waste with other waste; **maintain records** (quantity, nature, origin, mode of transport and treatment method) of all of the hazardous waste that it generates...”. None of these activities are foreseen in the examined EIA.