



Georgios Gkiaouris, Operation Leader  
EBRD  
One Exchange Square  
London EC2A 2JN  
United Kingdom

Ljubljana, 15 February 2010

**Subject: Comments of Focus Association for Sustainable Development on the EIA of the Šoštanj Thermal Power Plant Unit 6**

**Project name:** SOSTANJ Thermal Power Plant

**Country:** Slovenia

**Project number:** 40417

---

Focus Association for Sustainable Development is actively working in the field of climate change and energy since 2002. We were informed recently that the Šoštanj Thermal Power Plant has applied for a loan and that the project is currently under consideration by the EBRD.

We have significant concerns regarding the project's financial picture and its compliance with the climate and energy objectives of Slovenia. Moreover, we have also serious doubts about the actual necessity of the project. Therefore we would like to ask you to investigate some key problems (outlined below) and decide not to provide EBRD support for the project.

**Lack of alternatives**

As regard to the EU EIA Directive 97/11/EC, Article 5, paragraph 3, one of the information to be provided by the developer in accordance with paragraph 1 shall include at least: "an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects,". Also according to the Environmental Act (<http://www.uradni-list.si/1/objava.jsp?urlid=200639&stevilka=1682>) the EIA must give alternatives to the project.

The EIA does not examine any alternatives. This does not only refer to alternative sites for a new thermal power plant or alternative coal technologies, but alternatives refer also to use of renewables, energy efficiency measures as well as considering the 'do nothing' option.

The EIA should be upgraded with alternatives to the proposed project.

## Unclear financial picture

### *Doubling of the project price tag*

The main problem of the proposed project is that its economic picture shows low reliability and high dependency on hidden state support. In October 2006, the Ministry of the Economy announced the project of constructing Block 6 and estimated the project value to be roughly 600 million EUR. Roughly a year later, in September 2007 the project price tag reached 780 million EUR (an increase of 30%) and the investors approached EIB with a request for a loan. Approximately two years later, in October 2009, the price tag is at 1.1 billion EUR and the investors are not only applying for a loan at your institution, but also considering an application of additional 200 million EUR at the EIB.

The rise of the project's costs from the initial estimate of 600 million EUR to the current estimate of 1.1 billion EUR (almost doubling of the price) shows an unsatisfactory financial picture of the project. Although it is understandable that investment estimates can vary to some degree, this range of increase shows that the investment estimate can hardly be trusted.

### *Mainly financed through loans of banks that are based on public money and issue of cross-subsidisation*

Although information from October 2006, when the project was officially announced, claims that the investment can be covered solely by the funds from Slovene energy sector, this was an unjustified claim. As mentioned above, a 350 million EUR secured loan and additional 200 million loan are planned from the EIB, while the EBRD is planned to contribute 350 million EUR (see slide 22 at [http://www.te-sostanj.si/filelib/strateki\\_nart/strtegija\\_tepdf.pdf](http://www.te-sostanj.si/filelib/strateki_nart/strtegija_tepdf.pdf)).

Another issue is the high possibility for non-transparent cross-subsidization. Termoelektrana Šoštanj d.o.o. being one of HSE's subsidiaries, distribution of revenues beneath the different HSE groups (including Hydro power plants – Soške elektrarne Nova Gorica) is not transparent and cannot be criticised by default. However, possible profit transfers can undermine the claim of the profitability of certain projects and the self-sufficiency of financing aspects can be questioned. Under those circumstances cross-subsidisation is very likely and a cost analysis can be manipulated this way. Both the application for a loan from the EIB and the likely transfer of profits from hydro power plants into Block 6 show that financing of the investment is not as secure as the project promoters claim in public. It is difficult to imagine conditions under which a private investor would divert his positive cash flow/profits into a risky project the size of TEŠ 6.

### *Emission Allowances – no more free allocations*

In the future, the amount of CO<sub>2</sub> allowances (cap) will gradually be decreased, meaning that supply will decline, leading to higher allowance prices if demand will not be reduced at the same time. The power sector will have to buy 100% of allowances, but due to various levels of allowance price estimates, it remains unclear how this will affect the profitability and return of investment. Some scenarios claim a 6 year pay-back period for Unit 6, while some show over 15 years of pay-back time. The projections of the price of allowances used are unclear.

Another open issue in this aspect is the EU climate policy, which remains committed to a 30% emission cut in case there is an ambitious global climate deal. The impacts of transition to a 30% emission cut on the allowance cap and price are not suitably taken into consideration in the economic picture of the project.

### *Costs of lignite mining*

Additionally, the economics of the power plant are negatively influenced also by the cost of lignite mining. Mining of the lignite for fuelling the power plant would lead to extraction of all available lignite in the nearby mine, whereby the costs of the mining are uncompetitive, adding to the loss of the project. Deep underground mining of the last available reserves of lignite is expensive (the mine is the deepest lignite mine in the world) and does not lead to a competitive price: the price of the lignite (delivered price at North-European ARA ports) was about 1/3 higher than the European competitive price until the economic bubble of 2008 as well as during most of 2009. This clearly disables the competitiveness of the project in the market. For the future, the price that is proclaimed by TEŠ management (2.25 €/GJ or 8.1 €/MWh, to be achieved from 2014 on, down from current app. 2.5 €/GJ) would probably be in the competitive range (the ARA price in January 2010 reached and briefly exceeded 8 €/MWh). It is highly improbable that such price can be maintained in practice. A proof of that came in the news last week (week 6): the minority (20%) private owners are challenging the transfer price for coal from PV to TEŠ, as it does not allow for reasonable profits.

Based on the current cost and previous experience, it is highly improbable that the predicted coal cost can in practice be achieved. Current events have shown that even at the higher price charged now, the coal mine can not achieve normal returns on investments'.

### *Costs of CCS*

As stated on the EBRD's website, the new unit will be designed to be „carbon capture ready“. Furthermore it says that the initial studies indicated that carbon storage *may* be possible in the area<sup>1</sup>. As stated in the EIA Addendum, BAT technology for large combustion plants does not yet include the CCS technology for capturing CO<sub>2</sub> from flue gases. After 2020, emissions of CO<sub>2</sub> will have to be reduced to such an extent that CCS technology will have to be used in Unit 6 of Šoštanj Thermal Power Plant. There are some relevant implications of the CCS use on the economic picture, however. Firstly, CCS is not commercially ready yet and lots of research still needs to be done in order to prove it works reliably and safely. Next, CCS will not come cheap. CCS could lead to a doubling of plant costs, an electricity price increase of 21-91%<sup>2</sup>, which would, of course, worsen the economic aspect of the project again.

### **Unclear level of operation of the power plant**

The financial aspect of the operation is linked to the production of the power plant. Although the project documentation reveals that

- Units 1-3 will be removed,
- Unit 4 will remain as a cold reserve and
- Unit 5 and 6 will keep on operating

The recent public debate on the project in Slovenia puts these pieces of information under a question mark. Namely, the Director of TEŠ, as well as the government officials claim that Unit 4 will be completely closed and Unit 5 will remain as a cold reserve (see articles in key Slovene media in the period 20 – 30 January 2010).

<sup>1</sup> <http://www.ebrd.com/projects/psd/psd2009/40417.htm>

<sup>2</sup> Rubin, E et al., 2005a. Technical Summary in IPCC Special Report on Carbon Dioxide Capture and Storage, B. Metz et al., Editors. 2005, Cambridge University Press: Cambridge, U.K.

With such unclear information on what blocks will actually keep on operating and to what extent, it is hard to establish how the economics of the power plant will work out efficiently.

### Total emissions do not decline

One of the goals of Unit 6 is to achieve compliance with the Kyoto protocol commitments and to reduce specific CO<sub>2</sub> emissions. Despite the replacement of several old, less efficient blocks, which can be seen as an positive development, the new 600MW block will contribute to expanding the capacity of lignite electricity generation, resulting into an overall increase in CO<sub>2</sub> emissions.

The statement that Unit 6 will contribute to reducing CO<sub>2</sub> emissions by 35% compared to today is misleading and gives a blurred message to the general public. The 35% reduction only refers to the reduction of specific carbon dioxide emissions per unit of generated electricity (tCO<sub>2</sub>/MWh) but this efficiency improvement does not lead to an overall CO<sub>2</sub> reduction of the whole production site, as the production would increase.

The EIA does not assess what impact this project has on Slovenia's emission reduction targets. As stated in the EIA Addendum, with the beginning of operation of Unit 6 and by taking account of the planned use of coal, the emission of carbon dioxide will not be reduced and will stay at the same level (approximately 4 million tonnes of CO<sub>2</sub>). Since absolute CO<sub>2</sub> emissions will remain unchanged, this implies that this project does not contribute to reducing overall CO<sub>2</sub> emissions (at least unless CCS is in place and has been proven to work).

It is possible that the emissions increase significantly, depending on the levels of production. If, as planned in the documentation submitted to EBRD, Unit 5 remains fully active, the overall level of emissions would increase by roughly 1 Mt CO<sub>2</sub> in comparison to the predicted emission level of 4 Mt CO<sub>2</sub>. Apart from the economics of the project, this is another field where the operation level can impact the end result significantly. As there is opposing information given on the operation level, it is not clear what the emission impact of the TEŠ power plant will be.

Comprehensive calculations and overviews have been included in the EIA on NO<sub>x</sub>, SO<sub>2</sub>, CO and dust but the EIA does not consider to outline the total carbon dioxide emissions, including the calculation of CO<sub>2</sub> emissions in different operation loads.

Nevertheless, one table in the EIA Addendum looks into overall CO<sub>2</sub> emissions and no absolute carbon dioxide emission reductions can be identified until 2020. Further calculations and assessments on the total carbon emissions were not identified.

Table 38: Estimated emissions of CO<sub>2</sub> into the atmosphere in the period from 2009 to 2027

| YEAR | 2009         | 2010             | 2011             | 2012             | 2013             | 2014             | 2015             | 2016             | 2017             |
|------|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Coal | Unit 1-3     | 436.339          | 295.152          | 295.152          | 295.152          | 295.152          | 295.152          | 0                | 0                |
|      | Unit 4       | 1.550.525        | 1.669.219        | 1.888.867        | 1.669.219        | 1.602.797        | 1.888.867        | 0                | 0                |
|      | Unit 5       | 2.036.390        | 2.036.390        | 1.825.613        | 2.036.390        | 2.100.278        | 1.825.613        | 1.101.619        | 1.101.619        |
|      | Unit 6       | 0                | 0                | 0                | 0                | 0                | 0                | 2.912.976        | 2.912.976        |
|      | <b>Total</b> | <b>4.023.254</b> | <b>4.000.762</b> | <b>4.009.632</b> | <b>4.000.762</b> | <b>3.998.227</b> | <b>4.009.632</b> | <b>4.014.595</b> | <b>4.014.595</b> |

  

| YEAR | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             | 2026             | 2027             |
|------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|      | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                |
|      | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                |
|      | 1.101.619        | 1.101.619        | 1.101.619        | 997.181          | 892.848          | 788.410          | 683.971          | 569.078          | 464.640          | 360.307          |
|      | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        | 2.912.976        |
|      | <b>4.014.595</b> | <b>4.014.595</b> | <b>4.014.595</b> | <b>3.910.157</b> | <b>3.805.824</b> | <b>3.701.386</b> | <b>3.596.947</b> | <b>3.482.054</b> | <b>3.377.616</b> | <b>3.273.283</b> |

### **Climate targets unachievable**

The EIA highlights its relative CO<sub>2</sub> reductions (per unit of electricity produced) but it forgets the fact that emissions have to be reduced absolutely, not only relatively in order to contribute to tackling climate change. This leaves the question open how Unit 6 will contribute to achieve compliance with Slovenia's climate and energy commitments.

Lignite is one of the least efficient and most polluting energy sources which will extend Slovenia's dependency on fossil fuels and make the national renewable targets (25% by 2020) much more difficult to achieve. TES will continue to be the highest CO<sub>2</sub> emitting plant in the region.

With TES 6 and any other sort of fossil fuel based power plant, Slovenia will be locked into high carbon energy technologies. TES 6 is therefore an expensive distraction from the major investment needed for a radical transition to a safe and sustainable low carbon future, based on more modest consumption, energy efficiency and conservation, and renewable and decentralised energy, a future in which we no longer have to rely on non-renewable and unsustainable fossil fuels.

The emissions per person should reach 2 tCO<sub>2</sub> at the latest by 2050, which is already the amount of emissions produced by the TEŠ alone (estimated 4 Mt CO<sub>2</sub> per 2 million population of Slovenia). That means that the climate target to try to stay as far below 2 degrees as possible are likely to be missed just because of TEŠ alone. Missing the opportunity to reach the climate protection measures and emission reduction targets set by different institutions (national as well as super national) means a burden to the national budget as allowances will have to be bought and penalties will have to be paid.

### **CCS is not only uneconomic, but also wastes energy and opens risks**

In spite of the CCS being a planned part of the thermal power plant in the near future, the EIA does not elaborate on the impacts of CCS technology on efficiency, the environment, economic aspects, potential consequences of leakage or liability issues.

It is not currently possible to quantify the exact risk of leakage, however any CO<sub>2</sub> release has the potential to impact the surrounding environment; air, groundwater or soil. Safe and permanent storage of CO<sub>2</sub> cannot be guaranteed. Even very low leakage rates could undermine any climate mitigation efforts.

The EIA also does not consider the efficiency losses of the CCS technology that it will have on Unit 6. The reduction of specific emissions of carbon dioxide (tCO<sub>2</sub>/kWh) in the production of electric energy, primarily owing to higher utilization rates of the selected technology, is suppose to reach around 43%. This increase in the production of electric energy will be negatively influenced by the CCS technology and levels of carbon dioxide emissions by generated unit will not remain the same when CCS is in place. CCS technology uses between 10 and 40% of the energy produced by a power station<sup>3</sup>. Wide scale adoption of CCS is expected to erase the efficiency gains of the last 50 years, and increase resource consumption by one third<sup>4</sup>. Even without CCS, the net efficiency of Unit 6 of 43% will still mean that 57% of the energy content of the fuel is wasted through the cooling tower.

<sup>3</sup> Abanades, J C et al., 2005. Summary for Policymakers in IPCC Special Report on Carbon Dioxide Capture and Storage, B. Metz et al., Editors. 2005, Cambridge University Press: Cambridge, U.K.

<sup>4</sup> Ragden, P et al., 2006. Technologies for CO<sub>2</sub> capture and storage, Summary. Westermann, B, Editor. 2006. Federal Environmental Agency: Berlin, Germany.



## Public consultation concerns

Although according to the EU and Slovene legislation a project of TEŠ Unit 6 range would have to be a subject of a comprehensive public consultation, such a consultation was not done. On the local level there was a public disclosure of the plans and several hearings were organised, but on the national level there was no open debate until a couple of weeks ago. According to the Environmental Act (<http://www.uradni-list.si/1/objava.jsp?urlid=200639&stevilka=1682>) the public has to be informed and involved which does not implicate only local public but also the broader public all over Slovenia, especially due to cross-national impacts from emissions of TEŠ 6.

As an organisation that actively follows energy policy, measures and projects, Focus has not been informed about the project development. We received information about the project at the time when EIB loan was requested (September 2007) and no further information of the project until the EBRD consultation was open. Under the European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:197:0030:0037:EN:PDF>), especially Article 6 (2): "The authorities referred to in paragraph 3 and the public referred to in paragraph 4 shall be given an early and effective opportunity within appropriate time frames to express their opinion of the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme or its submission to the legislative procedure". Those basis standards of project development procedure as given, were not followed in the case of TEŠ6, especially when considering the effective opportunity within appropriate time frames for the public to express their opinion.

We firmly believe that there are numerous other projects in Slovenia more in line with the goals of EU policies that would be more suitable for the EBRD support than Šoštanj TPP, but they cannot be even prepared properly because the government, as the owner of TEŠ, strongly favours Unit 6 and invests all promotional efforts into this economically very dubious, environmentally highly unsustainable and undemocratically developed project.

We urge you to consider the above arguments while assessing the application of Šoštanj TPP for a loan from the EBRD and reject the application based on the given reasons.

Kind regards,

Christian Brandt,  
Energy program leader