Translation from the German original

G.E.O.S, Freiberg
Engineering Company Ltd

GEOTECHNICS - EXPLORATION - ECOLOGIE - REHABILITATION

CONSULTING ENGINEERS

O P I N I O N

to the

„Pre-Feasibility Study for the

M Á Z A-S O U T H

V Á R A L J A – S O U T H

Underground coalmine project„

Project-Nr: 30070002

Client: CALAMITES
ENGINEERING, BUSINESS CONSULTING LTD
RÁCVÁROSI U. 29/A
H-7634 PÉCS

Halsbrücke, the 17th September 2009

signed by
Dr. Horst Ritter
Managing director

O P I N I O N

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„Pre-Feasibility Study for the

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Underground coalmine project„

Client:	CALAMITES KFT RÁCVÁROSI U. 29/A H-7634 PÉCS
Project Nr. G.E.O.S:	30070002
Working period:	August-September 2009
Responsible persons:	Dipl.-Geol. Achim Freund Dr. Jürgen Hartsch
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Halsbrücke, the 17th September 2009

signed by:	signed by:
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Literature sources:

/1/ HARTSCH, J. et. Al: Evaluation of the geological resources and technical aspects for its utilisation for the coal deposit Máza-Dél Hungary, G.E.O.S. Freiberg, 2008 (German original)

/2/ PÜSPÖKI, Z.: Final Geological Report Máza-South, Debrecen 2009

/3/ WELLMER-F-W.: Calculation for deposit explorer and raw material economist part 1, Sven von Loga edition, Cologne 1992 (German original)

/4/ Black coal market in Germany, Annual report for 2008 of the German black coal union, Essen 2009 (German original)

/5/ United Nations International Framework Classification for Reserves/Resources for Solid Fuels and Mineral Commodities, ENERGY/WP. 1/R 1997

/6/ Statistics of the coal economy, Essen and Cologne 2007 (www.kohlestatistik.de) (German Original)

1. Scope of work

CALAMITES KFT (further on CALAMITES) had presented already in March 2009 in Freiberg a final geological model /2/ and a tentative mine plan, and by August 2009 also a prefeasibility study for the coal mining project for Máza-South was introduced.

Based on the contract for engineering services between CALAMITES and the G.E.O.S. Freiberg engineering Co. Ltd. (further on G.E.O.S.) dated on 10.03.2007.
G.E.O.S. had to prepare an evaluation and take a position to the geological and the economical statements of this study.

2. Summary of the results of the prefeasibility study

The prefeasibility study Máza –South was prepared according to Annex/1/ of the international reserves classification framework of the United Nations 1997 /5/
It contains the tentative minebility evaluation of the coal deposit and creates a decision-making basis for further studies, especially for the judgement and for the preparation of a feasibility study.

The study is based on a complex geological interpretation /2/, containing all the structural and raw material geological information further on the geotechnical and hydrogeological information. It succeeded to deliver a final plausible deposit model - a precondition for the mine planning - especially with the meticulous re-evaluation of the existing seismitic measurement data.

The deposit is tectonically affected in different ways, and hence it is subdivided in seven different geometrically formed blocks, which are the basis for the reserve evaluation and the mine planning.

For the calculation of the geological reserves the following minimal conditions are considered:

- Minimal thickness of the coal seams ≥ 1,2 m
  (intermediate deposits < 0,4 m were included)
- Heating value of the seam ≥ 12.560 kJ/kg
- Seam width (width of the mining front) ≥ 50 m
- Seam length (mining length) ≥ 400 m

Under consideration of the above criteria 20 Nos mineable coal seams were identified.

The geologically and industrially mineable reserves shall be calculated in two mining depths (appr. 220- 520 m to the surface and > 520 m to the surface)[1].

For the first planned mining phase (appr. 220-520 m) over 30 years the following important parameter shall be kept:

- Reserve (industrial) 77,2 mio. t
- Heating value 22.020 kJ/kg
- Average seam thickness 2,58 m
- Water content 6,2 %
- Ash content (dry) 31,7 %
- Sulphur content total 2,2 %
- Sulphur (burnable) 2,0 %
- Volatile matters 28,4 %

The planned yearly mining capacity amounts to 2,4 mio. tons.

At mining depths below 520 m the deposit has a significant extension potential with mineable reserves of more than 280 mio. tons enabling a possible life of appr. 80 years.

[1] In the German original there is an abbreviation GOK, which means surface level

Based on the Hungarian figures by experience the mining cost were calculated in detail.

The following results were found:

- investment cost 19,60 € /t
- operation cost 33,87 €/t
- mining cost total 53,47 €/t

The **mining cost** for one ton of run of mine coal shall be rounded up
54,00 EURO.

3. Evaluation of the results

The coals from Máza-South are according to the German standard are Gas to flame coals /6/ with very high ash and sulphur content and with a relatively low heating value. The deposit is marked by many tectonic disturbances and further on 20-50 m^3 methane is expected to be released with every ton of coal produced /1/

Internationally binding guidelines for black coal qualities for the world trade are not available. For the conventional power plant coal, the goal is as follows?

- Heating value > 23.000 kJ/kg
- Water content < 12 %
- Ash content < 18 %
- Sulphur content (dry) < 1,7 %
- Volatile matters (dry) < 45 %

Due to its high ash content, the coal from Máza-South can be used in the conventional power plant only under certain conditions. A flue gas desulphurisation is essential due to environmental reasons.

The limited size of the individual coal blocks, the tectonically diversity of the deposit and the partially deep seam dips make the application of a flexible mining technics and technology necessary with a high degree of mechanisation, to realise an optimal use of the coal deposit with simultaneous cost efficiency.
Due to the high sulphur content of the coal and the high geothermic gradients in the Mecsek mountains the risk for self-ignition is high, which has to be taken care with appropriate mining technology solutions.

The production of coking coal according to international standards is not possible. Only after an intensive coal preparation is the mixing into high quality (imported) coking coals feasible.

Generally, it can be assumed, that the coal from Máza-South can be gasified. The appropriate technologies have still to be identified. An underground gasification cannot be profitable due to geological and technological reasons /1/.

In summary the most part of the Máza-South coal can be classified as
Power Plant coal.

The import prices for black coal have hit in the past years generally new records. The world market price for power plant coal amounted in 2008 as a yearly average to 110 €/t CE (Coal Equivalent ca.28 GJ/ton)[2] /4/. Mid July 2008 import prices to Europe have hit on the spot market even the 160 €/T CE.
For Quarter 1 2009 the BAFA[3] -price for power plant cola from third countries free German border amounted to 91,24 €/t CE.

This kind of increase of the import prices bringing the Hungarian black coal closer to profitability.

[2] Heating value of one ton of coal t ce
[3] BAFA - Federal Office for economy and export control of Germany

Besides of the pure price risks als the supply risk is increasing due to the ever-growing import dependency. For the import depended user countries like Hungary supply shortages or unreliable supplier countries are threatening perspectives. With a mixture of local brown and black coal further some imported black coal from different supplier countries this supply risk can be contained. Hereby the chance to make a more environmentally and clime friendly use of coal by realising new, high efficiency power plants.

Considering the low heating value of the Máza-South coal, and the high cost for desulphurisation – under consideration of world market prices at least at present levels – **a sales price per ton of 70-80 Euro** can surely be assumed.
Given that the yearly cash flow reaches at least 50 mio. Euro.

Should be production of coking coal made possible, this would basically influence the economic result.

The coal mining from the deposit Máza-South could be sold in the first line for the Hungarian local market, and especially for the energy sector, due to its quality and production cost. For the coal sales the existent railway network is of an excellent advantage.

When mining a comprehensive seam degassing and the energetic use of methane should be realised based on the experience of the earlier mining activities in the Mecsek area under consideration of the workers and climate protection.

4. Notes to the study execution

According to the UN-framework classification/5/ a prefeasibility study should entail the theme listed in the Annex III. This requirement is met by the study of 2009 by large parts, but not completely.

The following items are still to be discussed:

- Legal affairs were not considered
- There is no market analysis and the financial analysis is uncompleted
- There is no risk analysis, resp. only partly for the geological circumstances
- The environmental impact of the project is not discussed

The following weaknesses should be listed, but not in series of theory importance:

- The description of the geology is mentioned only under item 4 „the coal reserve", and not sufficiently explained. The reference to PÜSPÖKI (2009) /2/ is not enough alone. From here the statements about the geological structure and for the reserve calculation should be taken over.
- There is no supported evidence for the potential reserves not yet classified as mineable (Code 222) see /5/. PÜSPÖKI /2/ had verified them through an interpretation of the geophysical and analytical data. This should be presented after the introduction of the two mining levels (until -520 m from the surface and beneath).
- The presented cost calculation is insufficient for an economic analysis. First cash-flow and income calculations are needed under consideration of the foreseeable interest rates, taxes and licence fees.
- The view of a possible mining period until 80 years is not realistic. Internationally the lifetime of a coal mine is considered for 20 - 25 years/3/.
  All economic calculations of the present study should be limited to 30 years. In this context the write off period of the shaft equipment is too long.
- There is a question whether the mining cost calculation the cost of the mine planning and the environmental requirements had duly been considered. (costs for closing the activities, renaturalisation, indemnification, reserves, etc.).

- In the heading line of the text „Feasibility Study" is mentioned. This description is not correspondent with the cover page, and not met by the content of the study.
- The denomination of the object MÁZA-SOUTH VÁRALJA-SOUTH seems to be very long. If there is no burden from the permitting side, the name MÁZA-SOUTH is considered understandable.
- It is recommended to check the professional English expressions.

In summary it can be stated, that the Pre-Feasibility study presented by CALAMITES fulfils the UN Framework requirements /5/ if the listed hints are considered and corrected. It contains a preliminary evaluation of the mineability and can serve as a decision basis for further studies (Feasibility Study).