

LIGNITE MINING DEVELOPMENT STRATEGY

STATEMENT OF PRINCIPLE

Recognizing that lignite will remain the principal fuel for electricity generation in the long term, the use of indigenous coal is encouraged in an environmentally and economically responsible manner, as well as reclamation of lands previously disturbed by mining.

BACKGROUND

Lignite is of outstanding importance to electricity generation in Kosovo. It contributes to 97% of the total electricity generation, 3% being hydro based power generation. Considering all the potential sources for power generation in Kosovo, coal safely maintains its leading position.

The Kosovo lignite mines are operated at one of the most favorable lignite deposits in Europe due to its geological conditions. With an average stripping ratio of 1.7 m³ of waste to 1 ton of coal, coal production at Kosovo mines could supply very competitive fuel to the power plants, compared to international fuel sources and energy prices. The total estimated economically exploited resources of approx. 10,000 Mt represent one of the richest lignite sources in Europe, which would allow ambitious power generation and expansion schemes in the forthcoming decades. Coal supply can rise in correlation with increasing electricity consumption.

Coal can be supplied with the highest degree of security and with predictable price levels. By this, Kosovo can take advantage of its large reserves and of its location in centre of South East Europe, where lack of electricity is to be expected in the mid to long term period.

Coal is of major significance for Kosovo as it provides direct and indirect employment for thousands of people in the coal mining and electricity generation industry.

RESOURCE ADVANTAGE !

**Sufficient for electricity
generation in decades
to come.**

Coal Reserves

There are two major lignite basins: **Kosova** lignite basin and **Dukagjini** lignite basin and also smaller lignite basins like: **Drenica**, **Malishevë**, **Babush i Muhaxherëve**. lignite basin and one **potential** lignite basin in southern part of Kosovo (Fig. 1).

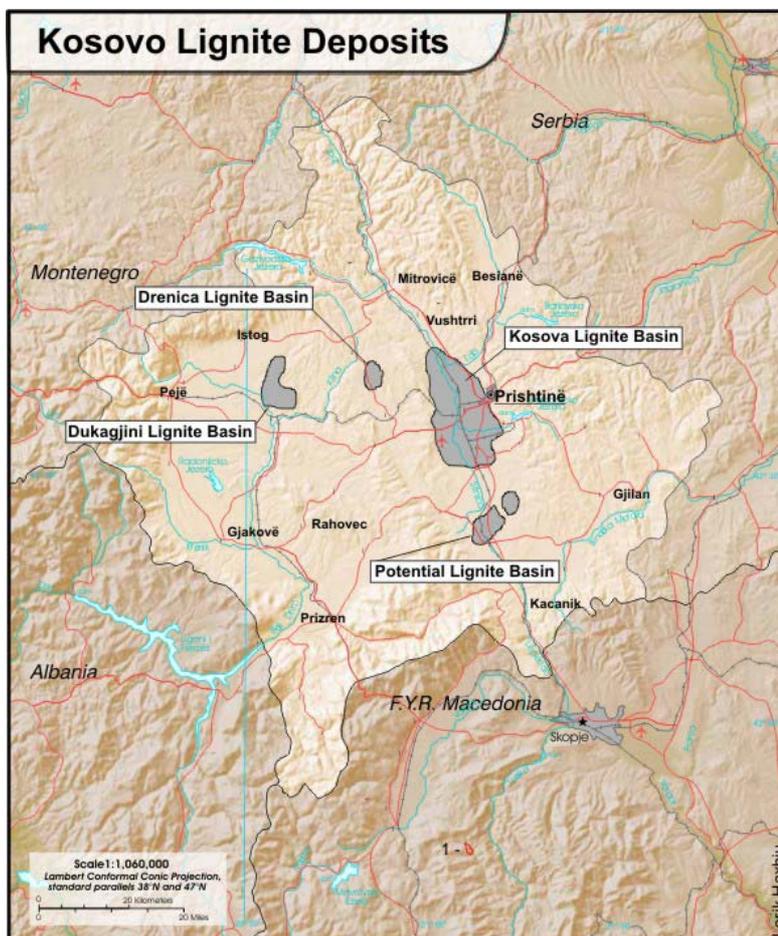


Fig. 1 Kosovo Lignite Basins

The lignite of the Kosovo basin belongs to the upper Miocene and has an age of about 9 million years. The coal seam thickness varies between 56 m and 70 m. The original overburden coverage shows a thickness of 60 m-120 m. Kosovo has the total estimated resources of approx. 10,000 Mt.

Coal Quality

The average values of lignite quality parameters of the different mine areas are:

Moisture content: vary between 35% and 50%.

Ash contents: between 12% and 21% within the coal seam. The average values are around 14% to 17%.

Heating values: 7800 kJ/kg on average in the Bardh-Mirash area, while 8100 kJ/kg in the Sibovc area. From total reserves: 29% (> 8,4 MJ/kg); 43% (7,7 – 8,4 MJ/kg); 25% (5,8 – 7,7 MJ/kg).

Sulphur: 1 % in all parts of the mines/deposit including an average content of combustible sulphur of 0,35 %.

Lime: Lime concentration is sufficient to absorb significant amount of SO_x during combustion so that desulphurization of flue gases is not required.

Exploitable Lignite Reserves in Europe

Country	bn t
Germany	42.8
Poland	14.0
Kosovo	10.0
Hungary	7.80
Turkey	5.90
Greece	4.20
Czech Republic	3.50
FR Yugoslavia	3.06
Romania	3.00
Bulgaria	2.50
Macedonia	1.70
Slovakia	0.38
BiH	0.31
Slovenia	0.15
Spain	0.04

Lignite market

The lignite market in Kosovo is clearly dominated by the demand of the local thermal power plants. Average annual coal demand for electricity generation is 7,5 M t. Total lignite for the use for other purposes or consumers than the power plants is estimated to 500,000 t/a. A significant increase of this amount in the long-term is not to be expected.

Current Mining Operations

Currently only Kosova basin is being exploited in two open cast mines Bardh and Mirash. Operations are performed by public owned mining and power generation company Korporata Energjetike e Kosovës (KEK).

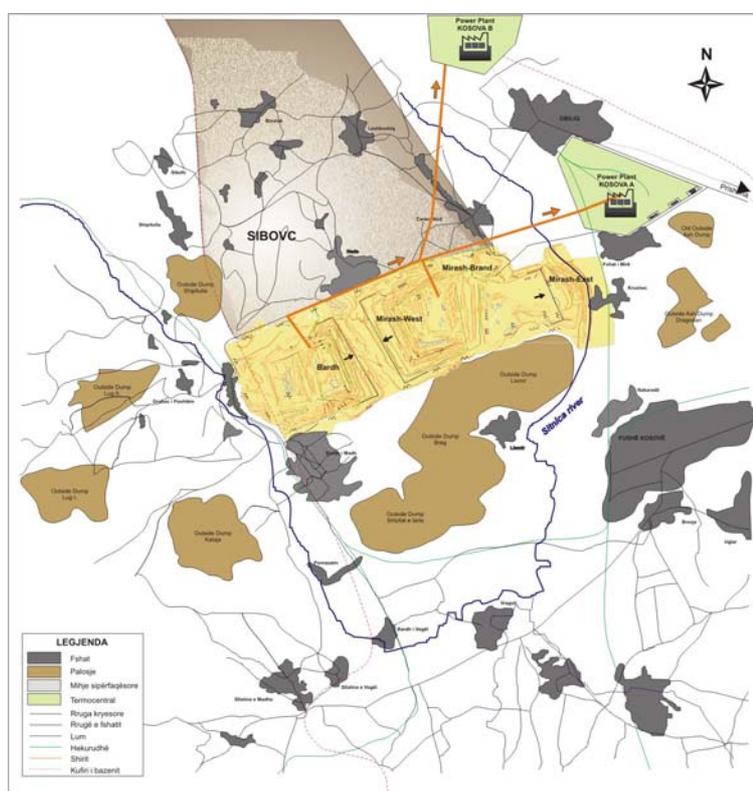


Fig. 2 Kosovo Lignite Mines

There are four working fronts (Fig.2): Bardh, Mirash-West, Mirash-East, Mirash-Brand.

Mining operations

Two open cast mines:

1. Bardh
2. Mirash

Four working fronts:

1. Bardh
2. Mirash-East
3. Mirash-West
4. Mirash-Brand

Operations at **Mirash-East** have been stopped due to depletion of accessible reserves. Further operations in this area require relocation of Sitnica river to reach additional 28 Mt of distorted low quality coal. This option is not economically acceptable.

Open cast **Bardh** has recently suffered a land slide that damaged all overburden and all coal benches. It will require additional 2 years and investments to reestablish all benches and normal production.

In **Mirash-West** a backlog of overburden removal and poor operational condition of main mining equipment gives unstable coal production. Practically major coal production comes from **Mirash-Brand** where reserves will be depleted within next two years.

Poor condition of mines and main mining equipment is caused by irrational coal exploitation and poor or no equipment maintenance in period 1990 – 1999.

Poor condition of main mining equipment.

Environmental impacts of mining operations

The review of the impact of the mining operation on the environment has been carried out considering past damages and future effects of the mining operation. Measures to minimize the future effects of the mining operation like dust and noise emissions, water pollution and resettlements have been planned.



Environmental Issues:

- Coal fires
- Outside dumps
- Reclamation
- Water pollution
- Noise
- Dust
- Industrial fog

With respect to the past damages, two main areas of concern have been identified, the reclamation of the old outside dumps and the extinguishing of smoldering mine fires. The reclamation of the outside dumps can be carried out at reasonable efforts and costs. However, special attention must be paid to the mine fires, which cause environmental problems (air pollution), safety problems in the mines and an economic damage on the deposit.



Sulphur causes self-ignition of coal if exposed to oxygen for longer time.

Royalties

A basic royalty system is in force but it requires an update. Annual mining lease rental fee should be considered to be levied on companies interested in maintaining privilege of exclusive mining right at a given area for agreed period of time.

Revenue collected from fees can be used for development of local community.

Mine operation outlook

Coal reserves in currently operating mining fields will cover coal demand of existing power plants for the next 10 years. New mining field(s) should be developed to meet coal demand of existing and new power plants for next 25 years and beyond.

Currently operating fields can supply coal to Power Plants for next 10 years.

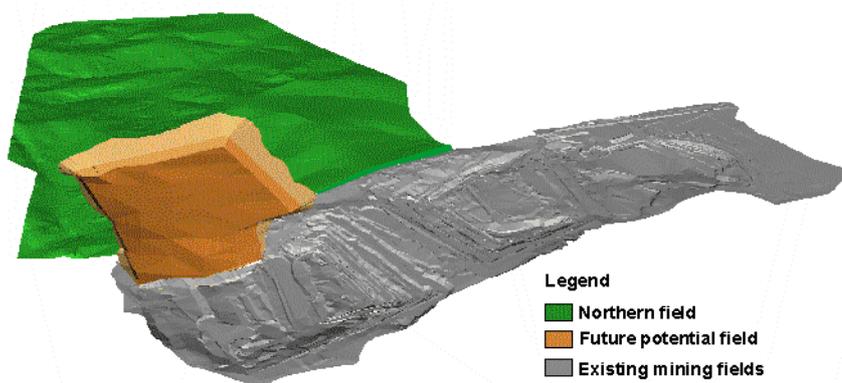


Fig. 3 Opening of Sibovc in continuity with the existing mines

North from the existing mines in so called Sibovc (Fig. 3) there is some 1,73 bn t of explored economically exploitable coal reserves that can be mined.

In Sibovc area data from more than 300 drillholes were collected.

Example: If annual production of 15 Mt of coal is assumed that would be sufficient for generation of approx. 7,500 GWh/a, these reserves would last for more than 100 years.

STRATEGY OBJECTIVES

- To encourage exploration and use of domestic deposits of lignite in environmentally responsible way.
- The development of long term plans for lignite mining in various locations in Kosovo, including assuring proper spatial planning permissions and protection of the areas where lignite deposits are.
- The achievement of climate of trust, open information sharing and fair issue resolution between the lignite mining industry and local communities.
- Prepare a clear and stable fiscal framework that will be attractive for private investors.
- Take advantage of Kosovo central place in South East Europe, where lack of electricity is to be expected in the mid to long-term period and attract export oriented power producers.
- Maximize employment opportunity, with reference to skilled occupations for which there is potential for employment over the long term and in which skills are transferable to other industry sectors (like ore mining, for instance).
- To encourage land reclamation and restoration in present and former coal mining areas.
- To develop research and development initiative in lignite mining and clean coal technologies.
- To create a high level of public understanding about the economic impact of lignite exploitation for electricity generation.
- To track technology development and research in lignite products.

Actions to achieve objectives 2003 – 2008

- ❑ Prepare short-term action plan for increase of the production from existing mines to the level required by demand from the power plants.
- ❑ Immediately start preparations for opening of a new mine in the Sibovc field so that production may start in 2008.
- ❑ Vigorously pursue opportunities to maximize economic values of lignite resources by full participation in regional integration processes and initiatives.
- ❑ Prepare an action plan for extinguishing of the underground fires, and for reclamation of the depleted coal mining areas.

Planning for opening of a new mine should start in 2003.

-
- ❑ Using geological and geophysical information gathered in the previous rounds of exploration, update the estimate of the resource potential in the lignite deposits.
 - ❑ Use current information on the mining potential to promote resource availability for electricity generation in a variety of forums, trade shows, presentations at technical conferences, and meetings with potential investors in power plants.
 - ❑ Consult with local communities before issuing exploration rights for new mining.
 - ❑ Enhance consultation mechanisms between government, regulators and the mining industry.
 - ❑ Maintain stable, predictive, and competitive fiscal system to enable potential investors to quantify the financial risk and rewards associated with mining operations.

2009 and beyond

- Monitor research and developments in clean coal and open cast mining technology.
- Monitor developments in alternate or unconventional means of coal utilization.
- Encourage indigenous coal production, including reclamation of previously disturbed lands.

Events that may result in Strategy Adjustment

Once a significant amount of the reserves are already committed to exploitation, examine the extent of future right issuance process, with the view of preserving the reserves, and avoiding overexploitation.

GOVERNMENT ROLE AND RESPONSIBILITY

The State owns the coal resources in Kosovo. The government acts as promoter of the resources to the private sector, maintains geoscience database and resident expertise in matters related to coal geoscience, manages the exploration, development of mining under a system of licenses and leases, and collects royalties on coal production, all under the authority of Laws on Mining and Geological Exploration.

The Government also regulates environmental performance of coal mines through Environmental Protection Law, and matters related to occupational health and safety through the Occupational Health and Safety Act.

The Government has a role to play in helping to provide for reclamation of lands disturbed by coal mining, which can restore large tracts of land from an unsafe, derelict state to a productive state that can benefit the community.