Coal mining in Slovakia

Introduction
The Slovak Republic is low in primary energy resources. 86% is imported annually. Solid fuels as brown coal and lignite (HU) resources have the main position from the entire home energy raw materials amount.

Output
In the year 2000, there was 4.5 million tons of HU and 4.8 million tons of brown coal output from the entire 9.3 million tons of coal output in Slovakia.

There has been 20% annual output decreasing in the last 10 years. Structural industry changes and gradual gas using in households were the main reasons. The number of towns using gas reached 67.12% in the Slovak Republic.

From the entire coal output, black coal was imported at all extent from the Czech Republic, Poland and Ukraine and 0.8 million tons of brown coal was imported from the Czech Republic in 2000. Home mining fulfilled 81.7% of home market HU needs. 7450 working positions were created for lignite coal mining in 2000.

Home coal resources
Apart from 5 coal deposits mining at present, there are 16 other deposits at different exploring levels.

Opened brown coal deposits are of tertiary age, different tectonic affecting level with difficult hydro-geological conditions mostly. Seams are from 2.0 m to 28 m thick. Deposits are flat positioned. Their depth under the surface is about 50 – 500 m and they are reached by underground way of mining. 389 million tons of geological resources are recorded in open deposits.

Coal mining
First official news about the industrial coal mining is from 1909. At that time, the Salgotarian stone coal society prepared and started mining in Handlóva deposit. In 5 years time (in 1914), they reached 175 thousand tons extraction a year.

The coal mining development continued, when there was another mine built in Novák, which started to extract in 1940.

In terms of mining societies all the mining conditions are fulfilled successfully and the extraction is provided by 100% complex mechanization. In driving of corridors the mechanization reaches 70%.

Home coal in Slovak energy policy
Social and legal coal mining and using conditions result from Slovak energy policy strategic aims resolved by the Slovak Government.

Deciding principles are as follow:
- reliable, safe, the most effective and ecologically acceptable society needs in energy kinds and forms fulfilling
- rational coal mining in open deposits finishing
- Slovak and EU legislation harmonization

For Slovakia is not rich in own primary energy resources, brown coal is the only important resource able to fulfill the needs of electric energy producing in case of unpleasant development. That is why, its position has been added to the strategy raw materials list and exploitation principles have been put to the Slovak Government 559/2000 resolution accepted with the Report About The Following Coal Mining In Slovakia.

Conclusion
Social and legal conditions create the space for coal mining at the optimal mining conditions level minimally until 2030. It gives the opportunity to apply initiatives for long-lasting coal using solutions especially by supplementary ecologically convenient energy devices building. At present, we are working intensively on their building preparation.
our country is still crucial. Furthermore long-term plans of Hornonitrianske bane Prievidza are based on this fact - to rationally mine coal reserves on the existing sites.

The company puts great effort into the research of coal utilization in the chemical industry, agriculture and clean-coal technologies.

Development of quality management is based on a long-term and permanent orientation towards the customer. The company implements the quality management principles as in ISO 9001.

**Coal exploitation and production**

Coal is mined in underground mines of the branches Baña Handlová, Baña Nováky, and Baña Cigeš in extreme geological conditions. A comprehensive and up-to-date range of machinery and equipment is available for underground mining and driving of corridors. They help to do hard work in underground mines more safely and comfortably. Driving of workings reaches 25 km a year, including investment driving. Mined coal is used for the production of 80 per cent of coal for power stations and 20 per cent of sized coal (cubes, nuts 1, nuts 2) for small users like industrial and agricultural facilities, schools, hospitals, and households. These kinds offer a high heating value, low contents of ashes, sulphur and nitrogen, low level of disintegration in the air, and very good combustion properties, particularly:

- they do not tar,
- they do not soot smoke flues and chimneys,
- they do not cause corrosion of furnaces, thus extending their durability,
- the contents of sulphur and nitrogen oxides complies with environmental requirements.

In the coal mining units there are individual coal treatment plants where mined coal is cleaned by modern treatment equipment into market coal.

The output of the mines is as follows:

<table>
<thead>
<tr>
<th>Mine</th>
<th>Output (tons)</th>
<th>Heating Value (MJ/kg)</th>
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</thead>
<tbody>
<tr>
<td><strong>Baña Nováky</strong></td>
<td>1 200 000 – 1 300 000</td>
<td>10-13</td>
</tr>
<tr>
<td><strong>Baña Cigeš</strong></td>
<td>850 000 – 900 000</td>
<td>10-15</td>
</tr>
<tr>
<td><strong>Baña Handlová</strong></td>
<td>850 000 – 900 000</td>
<td>10-17</td>
</tr>
</tbody>
</table>

**Machinery production**

Banská mechanizácia a elektrifikácia (Mine Mechanization and Electrification Works) provides all the machinery production for Hornonitrianske bane Prievidza. Its main activities are production, repairs and maintenance of mining machinery and spare parts, as well as control over special mining mechanization used in mining and driving. In order to keep the firm running at capacity, it also produces non-mining machinery and provides services.

Production program:

- powered supports for mines
- conveyers
- overhead monorail locomotives
- cooperation at boiler reconstruction
- heavy welded pieces
- heavy hydraulic equipment
- tanks, pressure vessels
- vacuum timber dryers
- automatic combustion devices (boilers) for burning split, sawdust, coal, etc.
- thermal pumps
- boilers for water heating
- floor heating systems
- suspended mobile lifting devices
- complement devices for tractors of the UR1 line
- outer protective surface coating of tanks for liquid gas storage
- special surface coating of railway tanks, chassis, railway and road balances, etc.
- production, repairs, and inspections of railway tank cars
- CO₂, argon, TIC, and cast welding
- ignition, hardening, cementing
- repairs of electric motors and transformers
- production of distribution boxes
- repairs and inspections of fire extinguishers

**Mining rescue service**

Rescue activities, such as quick and effective interventions for saving people and property in serious accidents during operation, first aid in the underground, getting serious operational accidents under control, in particular gas and coal dust explosions, fires in the mines, sand rushes, workings breaks, and ventilation faults, and the liquidation of accidents consequences are its main tasks.

Other services:

- works in unrespirable environment
- works at heights and above open depths
- repairs, filling, inspection, and pressure tests of pressure bottles
- repairs, service and inspections of breathing and filling rescue apparatus
- filling and service of hydropneumatic accumulators
- environment inertisation, rocks and materials freezing by liquid nitrogen
- determination of concentrations of some gaseous mixtures components, atmosphere analysis, and measuring of ventilation network parameters
- calibration, repairs, and service of detecting devices for explosive and toxic gaseous mixtures
- training for rescuers, industrial climbers, and users of detecting devices for gaseous mixtures

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