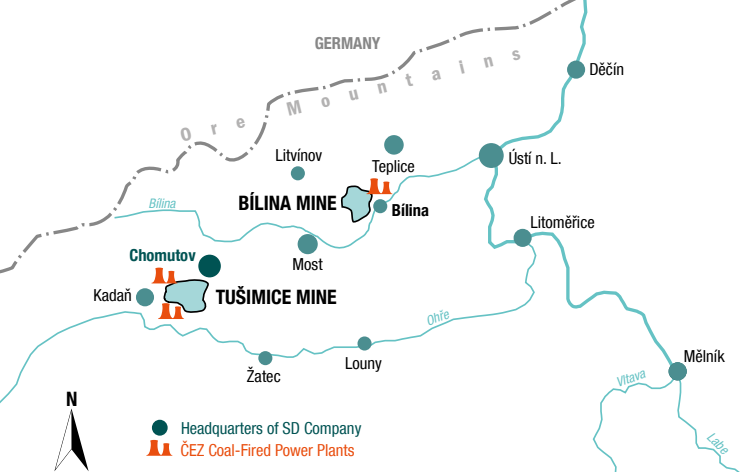




SEVEROČESKÉ DOLY  
**FACTS AND FIGURES**



## Brown coal as an important factor in the energy security of the national economy

Coal from the North Bohemian lignite basin is rightly regarded as the most important, long-term, competitive domestic source of energy and an important economic factor. The coal-fired power plants still produce the majority of the electricity – more than 50 %. The decisive share of this coal is held by the largest domestic coal mining company, Severočeské doly. Its annual coal sales have exceeded 20 million tons for a very long time and correspond to 55% of the production of brown coal in the Czech Republic.

## Severočeské doly – a stable and dynamic company

Severočeské doly (SD) is the largest brown coal mining company in the Czech Republic. It was formed in 1994 by the merging of two geographically separate mining sites – Doly Bílina (DB), operating in the Teplice coalfield area and Nástup Tušimice (DNT) operating in Chomutov area. As the largest domestic producer of brown coal we have an irreplaceable position, thanks to our membership of the ČEZ Group (since 2006) and the complete renewal of its thermal power plants for a long-term perspective. ČEZ is the sole owner of SD.

## The corporate culture is based on a centuries-old legacy of mining

Coal mining in the Teplice area began in the 18th century and somewhat later in Chomutov area. Since the beginning of the 20th century, the dominance of underground mines gradually gave way to surface mining, which completely prevailed in volumes



after World War II in the whole mining district. The dynamic development of continuous large-scale mining operations occurred in the early '60 s at DNT and in the '70 s at DB. Severočeské doly is based on a centuries-old legacy and tradition of mining, taking full advantage of the latest developments in science and technology. At the same, protection and restoration of the environment and social responsibility awareness are among the priorities of corporate culture in SD.

### SD Group

Severočeské doly Group consists of the parent company SD, three subsidiaries and one associated company. The subsidiary **PRODECO** ensures the production and maintenance of mining equipment, including the supply and installation related to the renewal of mining equipment. Operation of motor vehicles, vehicle repairs, including ancillary mining equipment, but also reclamation activities, excavation and drilling and blasting – these are part of a broad portfolio of activities of the subsidiary **Revitrans**. An important member of the group is **SD-Kolejová doprava** (Rail Transport), which ensures coal transportation, not only by track and siding, but also by the national rail network, including the fuel supply to ČEZ power plants.

### Efficient and safe mining

To improve efficiency and optimize performance, all components of SD Group management are involved. An important priority is improving indicators in the field of occupational safety. For several years already, the project Effective and Safe mining has been operating. The safe and professional running of mining activities in Severočeské doly was confirmed, among others by a general review by the Czech Mining Authority which took place in 2015 at the Bílina Mine, when a similar review was carried out at DNT, the State Mining Administration reported no faults. The DNT mine site is also proud to have repeatedly won the prestigious Golden Permon award, granted by the Czech Mining Authority in Prague for excellence in safety.

## SEVEROČESKÉ DOLY 2015

- Coal sales: **20.95 mil. tons**
- Overburden extracted: **77.64 mil. m<sup>3</sup>**
- Number of employees: **4,901** in the SD Group, of which the parent SD Company employs **2,681** people
- The main consumer of coal production was the company ČEZ (Power Plants Tušimice, Pruněřov, Ledvice, Mělník, Počerady, Heating Plant Trmice) roughly **73 %**

Power plant Ledvice near Bílina Mine - the new unit 660 MW







Bucket-wheel excavator  
KU 800.17/105 at Bilina Mine



Bottom of Bilina Mine – the deepest  
point in the whole Czech Republic



Coal preparation plant Ledvice

# BÍLINA MINE – DB

## Czech lowest point

Geological conditions at Bílina Mine are very complex. A mighty seam up to 42 m in thickness of high-quality low-sulfur coal is found at varying depths, divided by rock interburden and covered with layers of overlying claystone and sandstone. Therefore, very much depends on thoughtful, rational and safe organization of work associated with overburden stripping and actual coal mining. Overburden thickness reaches up to 200 m and is stripped by excavators in 7 benches. The mine strip ratio averages about 5.8 m<sup>3</sup>/t. All overburden is deposited on the internal dump, which is gradually reclaimed after continual partial completion of mining operations.

Bílina Mine stands out from other mines in the North Bohemian basin masterfully, not only in terms of stripped overburden volumes (more than 50 mil. m<sup>3</sup> per year), but also it being the absolute deepest of mining sites. The lowest point at the bottom of Bílina Mine is at the main mine water pumping station in the middle of the working face. Currently it is 18.5 m asl. Bílina Mine is thus the deepest open point made by man in the whole country. Given that the coal seam there deepens as the mine advances, an even deeper value should be recorded, in contrast with the fixed value recorded for the lowest natural point, which is the level of the Labe (Elbe) River in Hřensko with an altitude of 115 m asl.

## Coal preparation plant Ledvice

All extracted coal volumes are destined for the 8-km journey by long-distance belt conveyors to the coal preparation plant Ledvice. Coal preparation is an integral part of DB activities. Bílina raw coal, characterized by a high calorific value (in average from 9.5 to 20.0 MJ/kg), low sulphur, bitumen and other environmentally undesirable pollutants is neatly transformed in Ledvice plant into final coal products, meeting the strict legislative conditions for cleaner combustion. The coal prep complex has been operating for more than 50 years and is continually modernized and ecologized. Coal is crushed, graded and separated there, according to customers required choice of graded coal products (cube, nut 1 and 2), industrial mixes and rough powdered coal. Most of the production is supplied to power stations and heating plants and some to coal storages all over the whole country. A not insignificant amount, of course, heads to neighboring Ledvice power station.

### DB 2015

- Size of surface mining area: **44 km<sup>2</sup>**
- Overburden removal: **55.32 mil. m<sup>3</sup>**
- Coal sales **9.40 mil. tons**
- Number of employees: **1,441**
- The complete fleet total includes:  
**13** bucket-wheel excavators  
**90 m** overland belt conveyor transport  
**8** spreaders and **2** stackers/reclaimers

# TUŠIMICE MINE – DNT

## The most modern mining operation in the Czech Republic

At Tušimice Mine, coal extraction takes place in relatively favorable geological conditions. The coal seam is located about 75 meters below the clays and claystone overburden, which are removed by bucket wheel excavators in three overburden benches, all overburden is then transported away by long-distance belt conveyors and deposited on the DNT internal dump using spreaders. The hallmark of Tušimice thermal coal are the qualitative differences. All coal production from different parts of the mine go through a homogenization stockpile with capacity up to 600 thousand tons, where they are blended, reducing any spread in the quality parameters of the coal, such as sulphur content and ash, so as to suit the requirements of the power plants. Thanks to the controlled homogenization operations on varying coal qualities, it was possible in 2015 to balance out 2.70 mil. tons of varying economic coal reserves. At DNT, there is accordance with Mining Law, that is to exploit as fully and as economically as possible, coal deposit with satisfactory calorific value and sulphur content as fuel for upgraded thermal power plants. A substantial portion of the coal is transported on conveyors and via rail siding to the adjacent Tušimice and Pruněřov power plants. In recent years, extensive modernization and renovation of the main mining technology took place at DNT, including a new generation of bucket wheel excavators and stackers. This also included an advanced coal homogenization stockpile (with 2 original machines – stackers/reclaimers). Tušimice Mine thus belongs amongst the most modern mining operations in the Czech Republic.

## DNT as a standard of safety in the mining industry

Strict compliance with the rules of Effective and Safe Mining Vision bears positive results in the area of occupational safety and health. In 2015 DNT recorded only one case of serious occupational injury, while not registered any extraordinary event subject to the reporting obligations of the State Mining Authority. Also, in other recorded safety aspects (number of lost working shifts, hospitalizations), DNT showed the best results, therefore the Czech Mining Authority awarded them the prestigious prize for outstanding achievement in the field of occupational safety in 2015 – the Golden Permon. In the previous fourteen year history of awarding the Golden Permon, DNT received this prestigious award five times, namely in 2008, 2009, 2011, 2014 and 2015.

### DNT 2015

- Size of surface mining area: **42 km<sup>2</sup>**
- Overburden removal: **22.32 mil. m<sup>3</sup>**
- Coal sales **11.55 mil. tons**
- Number of employees: **969**
- The complete fleet total includes:
  - 9** bucket-wheel excavators
  - 60 km** overland belt conveyor transport
  - 4** spreaders and **3** stackers/reclaimers





Bucket-wheel excavator  
SchRs 1 320/K 110 at Tušimice Mine



Spreader ZPDH 6 300/Z 101  
at Tušimice Mine



The Golden Permon – a national prize for outstanding  
occupational safety achievement in the mining industry



A newly reclaimed landscape in the Tušimice mining area



Transfer of amphibians from the DB Mine forefront



The recirculating automatic washing of vehicle wheels at Bilina Mine



# RESPONSIBILITY FOR THE ENVIRONMENT

## POST-MINING RECLAMATION

## AND NEW LANDSCAPE CREATION

### Eliminating and minimizing the negative impacts of mining is part of the SD strategy

Severočeské doly places particular emphasis on environmental protection and the working environment. One priority is a complex of protective measures to improve the life in communities adjacent to mining operations, primarily focused on dust and noise management system. These include effective earth banks and walls and planted forest belts. The coal fines dump site, originally operating in the vicinity of the town of Ledvice was relocated and dust proof casings were fitted at the coal handling sections of Ledvice coal preparation plant. To improve the working environment of SD employees directly at mine operations, dust control at source involves water sprinkling of transfer points at conveyor belts, constructing dust free roads and planted green belts. To combat noise emissions in the surrounding area, modifications were made directly to the belt conveyors – covering the engines drive stations and by the use of special soundproof belt idlers. The subsidiary company Revitrans with it's fleet of vehicles and supporting apparatus provides transport and reclamation services for both SD mine sites, and in addition helps with tidying and dust cleanup on the streets of Braňany, Ledvice and Chotějovice. Pollution of public roads is effectively prevented by the recirculating automatic wheel washing of all vehicles that leave the mining area. STOP DUST, a joint initiative between Severočeské doly and neighbouring communities has been successfully operating for many years and open communication helps to minimize the adverse impacts of mining on the environment.

### Quality reclamation for the future

The extensive reclaimed area at DNT and DB shows a high level of professionalism. Step by step, a new landscape is being created that is both environmentally and aesthetically connected with the surrounding territory. Quality reclamation gives tangible evidence of minimizing the negative effects of mining coupled with the maximum efforts of Severočeské doly for the fastest possible remediation of the affected landscape. Forestry reclamation prevails, but there are highly visible areas designated for agricultural use. A specific form of reclaimed land is for nature conservation and recreation. Successful cooperation exists with scientists of the Czech University of Life Sciences, who are carrying out long-term monitoring in the forefield as the mine advances and also in reclaimed areas. They monitor the health of new vegetation and biodiversity needed for greater diversity of species. They organize the transfers of amphibians and endangered and protected species of plants from the sites of planned mining to other substitute environments.

### Environmental protection, remediation and reclamation activities 2015

- **54** sprinklers at transfer points of belt conveyor from DB coal mine to Ledvice preparation plant and regular spraying of mine communications effectively reduces dust
- Emission of fugitive dust particles from Ledvice preparation plant reduced by **10** powerful wet level separators and **165** sprinkler points.
- **6** protective earth embankments at DNT and DB protect against the adverse impacts of mining operations on neighboring municipalities
- **12** years is the average time for a reclamation cycle
- Balance of reclamation in 2015 as reported:  
**5,336 ha** completed reclamation (DNT **2,382 ha**, DB **2,954 ha**)  
**1,089,455** seedlings were planted in total during the year for SD reclamation

# SD: A FUTURE ORIENTED COMPANY

## DB – A stable future

The prospects for the both two mining sites of Severočeské doly are very good. In connection with the approval of the State Energy Policy until 2040, which provides for the preferential use of all available domestic energy resources with the application of best technologies and methodology maximising environmentally protection, the government made a long-awaited desirable decision in Autumn 2015: the mining limit correction for the Bílina Mine. On an area of less than 6 km<sup>2</sup>, most of which is owned by Severočeské doly and mining does not impinge on any human settlements, there are are mineable reserves. These amount to 100 to 120 mil. tons of highly caloric low-sulphur coal with a wide range of applications from heating plants to modern low-emission ecological boilers of district heating plants up to large power plants, especially for the new eco-friendly 660 MW power source at neighboring Ledvice power station. Adjusting the limit thus allowed mining in the Bílina area to continue until the year 2055. A significant benefit of this step will also be seen in social areas and the state budget. Currently the SD Group has around 4,900 employees and roughly one thousand new employees will be taken on in the period to 2024 due to an ageing workforce. Hundreds of other people can also find jobs in related industries. Already in advance of the approaching mining area, DB, together with representatives of the municipalities of Braňany and Mariánské Radčice has taken steps to minimize the disruptive effects of mining on the environment. Effective protective walls and earth banks are already fully proven in the town of Ledvice.

Bílina Mine coal working face



### DNT – Homogenization allows maximum extraction of the coal deposit

Due to the advance of Tušimice Mine to zones with lower quality coal, the whole process of homogenization, the mixing of higher quality and lower quality coal to adjust its parameters in compliance with the quality requirements for power generation, is an absolute necessity. Therefore, from 2016, a large scale storage depot will be integrated into homogenization operation. It expands the homogenization stockpile, creating an extensive technological node, important for the future of the Tušimice Mine. Single entry room-and-pillar mining can be used for mining-out of the coal in the closing slopes – an effective method of underground mining within an opencast mine. This method enables acquisition of coal, which has higher calorific values than coal production at surface portions of DNT.

#### Prospects for Severočeské doly

- **2040** estimated year of completion of brown coal mining at DNT
- **2055** estimated year of completion of brown coal mining at DB
- **100 to 120 mil. tons** – quality low-sulphur coal represent recoverable reserves in DB within lifted mining limit







**člen Skupiny ČEZ**



**Severočeské doly a.s.**



**SD – Kolejová doprava, a.s.**