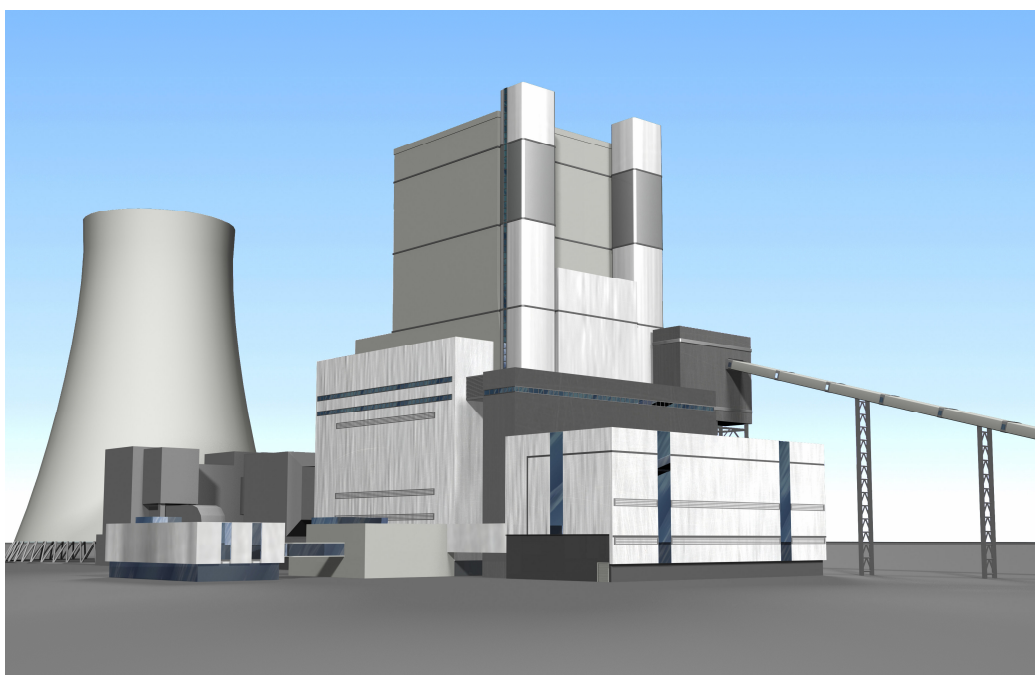


***OUR PROJECT WILL EXPAND THE NATIONAL
POWER GENERATING CAPACITIES,
ACTIVATE THE LOCAL ECONOMY
AND
CREATE NEW JOBS***



**CONSTRUCTION OF 833 MW POWER UNIT
AT
BOT- ELEKTROWNIA BEŁCHATÓW S.A.**

**SUMMARY OF THE ENVIRONMENTAL IMPACT STATEMENT
(NON TECHNICAL SUMMARY)**

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REPORT SUMMARY ABOUT ENVIRONMENTAL IMPACT OF PROJECT – CONSTRUCTION OF NEW 833 MW POWER UNIT LOCATED IN BOT ELEKTROWNIA BEŁCHATÓW

1. INTRODUCTION

The company BOT Elektrownia Bełchatów SA (referred further as „Bełchatów Power Plant”, „the Company” or „EBSA”) is the largest Polish and European lignite fired power plant and the largest electricity generator in Poland, accounting for about 18% of Poland's electricity generation. The Bełchatów Power Plant belongs to the holding “BOT Górnictwo i Energetyka SA” (BOT GiE), with the neighbouring 34 mln t/yr mine operated as a separate entity.

The Bełchatów Power Plant is located within the Kleszczów commune in the district of Bełchatów and



the province of Łódź, around 80 km south of the city of Łódź and 180 km south-west of Warsaw. The plant was gradually commissioned throughout the 1980's, with a final 4.3 GWe of installed capacity in 12 units. A gradual modernization plan has been implemented since the 1990's, mainly aimed at improving efficiency and ensuring compliance with air emission standards. The plant has installed flue gas desulphurization (FGD) and modern electrostatic precipitators (ESPs) on a number of units which has resulted in a drastic reduction of emissions over the past decade. Currently 8 units are equipped with desulphurization installations. The plant is contracting for the construction of two additional FGD units and the project funding will be used for these two additional FGD units plus additional sulphur emission abatement at unit 1 and 2.

In 2001, the Ministry of Treasury approved the Bełchatów Power Plant's development strategy, preserving it as a strategic power generating resource essential to maintain security of electricity supply in Poland.

Construction of the new power unit will allow for a stable regional development policy to be maintained and will also ensure employment opportunities.

The new unit and the modernization of the Bełchatów Power Plant is part of the long term national energy security programme and the project is in compliance with the National Energy Policy. The need for upgrading the existing generating capacity is also due to Poland's continued economic growth, partially resulting from EU Accession and the need to replace old inefficient and polluting generating assets with modern plant meeting Polish and European Union environmental standards. The project is an element of Poland's strategy of meeting the requirements of the Large Combustion Plant Directive and replacing old coal fired plants with modern units.

The Company's future generating strategy is based on compliance with Polish and European Union environmental standards and consists of the following:

- construction of a new 833 MWe power plant;
- modernization and reconstruction of power units 3 to 12 aimed at their compliance with the Directive 2001/80/EU concerning emission from large combustion plants (LCP Directive);
- target decommissioning of units 1 and 2 in 2016.

After the construction of the 833 MWe power unit in 2009, the units 5 to 12 will be sequentially out of operation for the period of their reconstruction and restoration. The new unit will therefore not add additional new capacity over this period, albeit an overall increase in installed capacity will occur prior to the formal shut down of unit 1-2 in 2016.

The 833 MWe power unit will be constructed on the basis of an EPC “turn-key” contract, with Alstom consortium. The first phase, planned for 8 months, covers designing and permitting for construction of 833 MWe unit. This phase will be financed using Bełchatów Power Plant own resources.

The second phase covers construction, start-up and performance tests of the 833 MWe unit. The total period for implementation of the second phase is 48 months. BOT Elektrownia Bełchatów SA implements currently the first phase.

1.1. Purpose of the project

The main purpose of the project is to rebuild the power plant's capacity due to the need of the decommissioning of old units which do not meet future environmental standards. In Bełchatów, the oldest power units (number 1 and 2) will be operated until 31st December 2015, which coincides with the design life of these units. In order to enable operation of these units until this period, they will be upgraded and modernized, including the addition of SO₂ abatement equipment (partial flue gas desulphurization) to ensure that emission limits, post 2008, are met. After 2015 units number 1 and 2 will be decommissioned and permanently taken out of service.

The project will also ensure that during the planned modernisation, lignite output from Bełchatów Mine will be maintained at constant levels. This will allow for the mine to maintain a stable level of production and employment, make use of Best Available Techniques as required under the IPPC Directive and will help to reduce the overall environmental impact associated with generation of electricity in Poland.

2. ENVIRONMENTAL CONDITIONS

The Environmental Impact Statement has not identified any third parties directly affected by the planned project or the planned change in the current land use at the site. Furthermore, the Environmental Impact Statement has not identified any significant potential for social conflicts as a result of the planned development. These main features of the project can be summarised as:

- the impact of construction and operation of the plant is limited to the developer owned area, and no new land will need to be acquired;
- the scale of investment and its location do not change the existing industrial landscape in the Power Plant vicinity;
- water, sewage system, electricity and heat provision as well as communication and highways accessibility will be not affected, as the project will use existing infrastructure;
- emission of pollutants into the atmosphere will not exceed legal limits; EU emissions standards and Polish regulations relating to air pollution will be met;
- waste management from the operational plant will meet the environmental protection regulations; post-reaction product (gypsum) will be entirely managed, and furnace waste will be stored at the new BOT Elektrownia Bełchatów S.A. storage area;
- the new project will not directly affect any environmentally protected areas, including potential or existing NATURA 2000 sites or other protected areas as defined by Polish environmental legislation.

3. PROJECT DESCRIPTION

The newly designed, lignite fired 833 MWe power unit, located in the BOT Elektrownia Bełchatów S.A. area will be a base load plant, with expected use of power rating at 7500h/year, the total operational time will amount to around 8100h/year. The new power unit will allow for high unit availability and high level of automation, with a 41.56% guaranteed efficiency. Moreover, it will be characterized by lower emissions in compliance with Polish and EU regulations, compared to other generating companies in Poland. The designed power unit will produce electricity, based on supercritical parameters, with use of specific properties of steam in high temperature. This technology has a relative high efficiency, therefore, one unit of produced energy will use less amount of fuel than other similar plants in Poland and thereby result in less emissions per unit of generation. The new unit will use state-of the-art technology similar as other power stations recently commissioned in neighbouring Germany.

A cooling tower will be associated with the new unit, and flue gases will be emitted via the cooling tower. This modern form of flue gas emission has been successfully implemented in recent projects throughout Western Europe. The use of the cooling tower eliminates the need for constructing an additional stack.

The new 833 MWe power unit will be a stand alone plant within the existing power plant area and will rely on existing systems. Due to the close vicinity of many existing Bełchatów Power Plant's auxiliary systems, it is expected that they will support the new unit, including some media delivery in start-ups period and during typical operation of the power unit.

The overall project consists of:

- an 833 MWe gross power unit with auxiliary systems in the range of fuel circuit, steam circuit, water loop, and electric circuit;
- waste flue gas desulphurisation systems for existing power unit (electrostatic precipitator and wet flue gas desulphurisation system);
- water intake and water supply systems;
- a cooling tower for the new unit. Waste flue gasses will be emitted via the cooling tower;
- waste disposal systems from combustion plant and the emission control system;
- circulation and preparation water systems located in the building site area;
- internal media supply and the structures will relay on existing connections with external road and railway networks;
- service lines to the current power plant infrastructure and as needed transpositions of existing site infrastructure.

Prior to making a final decision concerning the selected technology for the new plant a feasibility study was undertaken. The analysis was carried out with regard to possible variants of electricity production which could be applied in the conditions of BOT Elektrownia Bełchatów S.A.

This feasibility study included comparison of the following technologies:

1. Conventional technology for lignite combustion using pulverized-fuel boilers.
2. Lignite combustion technology using circulating fluidized bed boilers (CFB)
3. The power unit with coal gasification combined cycle (CGCC)
4. System with pressurized fluidized bed combustion boiler (PFBC)

The considered technologies (except conventional technology of lignite combustion in pulverized-fuel boilers) are characterized by high investment outlays and high operating costs, or – at the time of decision making – these technologies were still in their development and testing phase and not proved for lignite combustion purposes.

As a result of the analysis of different technological options for the new power unit, a decision was made to for the construction of a new 833MWe power unit, utilizing a conventional lignite fired boiler which operates with supercritical parameters and is equipped with a combustion gas desulphurisation system.

The advantages of the selected option are the following:

1. proven and available technology;
2. high efficiency of electricity production (41.56 % net);
3. high reliability (on the basis of the practical experience with the new power units operated in Germany);
4. relatively lower operation costs;
5. reduced environmental impact of the facility.

The Environmental Impact Assessment considered a zero option of not undertaking the project.

4. SIGNIFICANT ENVIRONMENTAL IMPACTS.

4.1 Building phase

There will be some environmental impacts associated with the construction of the new power unit in BOT Elektrownia Bełchatów (they will not appear in operating period of facility), associated for instance with emissions. For example from welding, chlorinated rubber paints, and epoxide paints. These emissions will be localized, limited to the building site and will not result in additional environmental impacts on the surrounding environment or materially affect the current ambient air quality.

Noise from the building process will affect the building site, construction camp, and access roads.

Water for sanitary and technological purposes will be provided with pipelines to the building site from the current water network. BOT Elektrownia Bełchatów can provide 24m³/h for those above mentioned purposes during the construction. It is estimated that the maximum amount of sewage in the construction period will amount to about 674m³/d. The sewage will be removed to the existing sewage system network on the power plant area. For building purposes, fire extinguish water will be provided with a pipeline to the building site border, which is destined as an emergency connection with fire extinguish network for BOT Elektrownia Bełchatów S.A. and new power unit.

Construction waste will be recycled, and if this will be impossible because of technological reasons or will not be justified for ecological or economical reasons, construction waste will be delivered to the existing in BOT Elektrownia Bełchatów S.A. landfill area.

4.2. Operating phase

Expected Emissions From Planned Project

Air Emissions

The new plant is designed to ensure that combustion gases will not exceed the values specified in the below table.

Type of pollutant	Volume of emissions
Sulphur dioxide	200 mg/Nm³ at 6% O ₂ in dry combustion gases or 400 mg/Nm ³ when at least a 95% efficiency of the combustion gas desulphurisation system is maintained in the case of the combustion of fuel with a high sulphur content
Nitric oxides by conversion to nitrogen dioxide	200 mg/Nm³ at 6% O ₂ in dry combustion gases
Dust	30 mg/Nm³ at 6% O ₂ in dry combustion gases

The emissions are in line with the requirements set out in the EU Large Combustion Plant Directive for new plant.

Waste Management

The operation of the plant will result in around 723 000 tonnes of fly ash and bottom ash as well as annual production 341 000 tonnes of gypsum from the desulphurisation process will be produced. Gypsum will be used as raw material for building material manufacturing, and ash will be collected at a new specifically designed landfill. has been commissioned by Bełchatów Power Plant. The landfill will meet EU and Polish environmental standards.

Wastewater

During operation of the power unit the following types of liquid waste will be produced: process sewage, industrial sewage, sewage containing oil, sewage containing chemicals, sewage containing suspensions, sanitary sewage and rainwater sewage.

With regard to water and liquid waste management, there is little impact to the water environment as the wastewater is re-circulated and re-utilized in the process systems of the existing BOT Elektrownia Bełchatów S.A.

Noise

The sound power level of 833 MW power unit's installations is below 85 dB(A). According to the EPC Contract, the sound level of coal pulverizers is 88 dB(A) due to lack of technical possibilities of noise limiting at source.

This level is allowed for the location of coal pulverizers (the boiler house – an area not used for constant human use).

Natural Environment

The project will result in an environmental impact due to the volume of pollutants emitted to the atmosphere, amount and type of waste generated, volume of water taken for the process needs, amount of coal used for electricity production and due to the coal mining activities as well as dominating impact of the new facilities on the skyline.

The new power unit will consume about 10 million m³ of water for process purposes per year. Water consumption will be limited to the water required to supplement water lost as a result of evaporation and bonding. The desired result will be achieved by multiple usage of water in the closed water circulation systems.

Coal mining will be carried out in accordance with the agreed mining plan which, in accordance with the Polish Mining and Geology Law, includes a separate chapter concerning the protection of the environment against the impact of mining activities. The mining plan is subject to social consultations and consultations with competent authorities. The mine is operated as a separate entity and is not subject of this EIA process.

The calculated maximum environmental impact of the new power unit in connection with air emissions is estimated at around 4 kilometres for sulphur dioxide, nitrogen oxides and dust emissions. Expected emissions from the new power unit and emissions from existing power units will not lead to exceeding of the permissible ambient air concentrations specified by relevant regulations. It is estimated that the share of the pollutant emission generated by the new power unit will be below 20 % of the total pollutant emission to the atmosphere in this area.

The level of noise permeating from BOT Elektrownia Bełchatów S.A. after the construction of the new power unit (under normal operating conditions) to the areas subject to acoustic protection does not exceed 44.7 dB. Consequently, the requirement of not exceeding the allowable limits will be met. The allowable limits for those areas are as follows:

- **night time: 45.0 dB,**
- **daytime: 55.0 dB,**

Fly ash from the electrical precipitators as well as bottom ash will be disposed off at the ash landfill site located near the power plant. Currently used ash disposal site will be replaced by a new site, constructed in line with EU and Polish environmental requirements

It is planned that the entire amount of gypsum produced will be used as raw material for building material manufacturing. In recent years a number of companies have been established in the vicinity of the power plant that utilize gypsum produced from flue gas desulphurisation process for use as construction material.

In connection with the operation of 833 MW power unit, there will be no major increase in the use of hazardous substances in comparison to that currently used at the Bełchatów power plant. At the same time, the amount of the hazardous substances to be used will not result in the change of the current risk category for the entire BOT Elektrownia Bełchatów S.A.. Pursuant to Polish legislation the plant is classified as an installation of increased environmental risk.

The raw materials and other materials required for the power unit operation will be delivered by road and railway transport. The road network and the railway line have enough capacity to assure continuity of deliveries. Deliveries of raw materials to the new boiler will not result in considerable traffic intensity increase on the roads in the area and on the railway line and consequently will not have a considerable environmental impact.

The new facility will constitute a separate, distinguishable component of the landscape. The facility will be integrated with the existing buildings located within the grounds of the Power Plant. Consequently, it will have a smaller impact on the landscape features of the area in the vicinity of the plant and in the neighbouring areas. The facility will not cause changes concerning the land development plans of the areas.

The shape of the individual structures of the facility, their location, proposed colours of the objects will guarantee that the facility will not interfere with the existing landscape, despite the fact that the facility will constitute a shape clearly distinguishable from the remaining part of the Power Plant.

Within the range of the existing and new Power Plant's potential environmental impact, after the construction of the new power unit, there are no environmental protection objects included in the NATURA 2000 protection plan or any other objects which are subject to environmental protection in accordance with the relevant legal regulations and protection plans.

4.3. Decommissioning Phase

The environmental impact assessment considered the impacts associated with the future decommissioning stage of the project. Environmental regulations as well as health and safety requirements will be observed during the decommissioning phase, with a specific attention to waste management requirements.. There will be a considerable amount of waste during dismantling of technical equipment and building structures – mainly ceramic debris, scrap, insulation parts, wood waste and plastic waste. All wastes will be economically used, utilized, or stored.

The dismantling process of technical infrastructure will need specific attention due to the risk of ground contamination associated with decommissioning of hydrocarbon handling facilities, as well as transformers and dealing with the arising waste.

All installations and the supply network will be empty before dismantling. All chemical materials will be removed from the facility area so that they can be utilized in environmentally safe manner (chemical neutralization, thermal degradation).

The decommissioning process will be monitored and recorded. Pursuant to Polish regulations, the operator is responsible for contamination which may be associated with the decommissioning process.

The area will be levelled after decommissioning and as required, surface soil will be replaced, protected against erosion with ground sowing.

5. Mitigating measures

EBSA will operate the new power unit in accordance with the requirements stipulated by the Polish regulations and the European Union legislation on environmental protection. The Power Plant has an integrated permit (IPPC - Integrated Pollution Prevention and Control) and has implemented an integrated quality, environment, industrial safety, and information protection management system, consistent with ISO 14 000.

The technology proposed will fulfil the requirements of the Best Available Techniques (BAT).

The technology for lignite combustion in a conventional boiler which is equipped with environmental protection installations will minimize the environmental impact of the process on the environment in the vicinity of the Power Plant. Coal combustion will be carried out in highly efficient installations which will enable the efficient utilization of the environmental resources, coal, water and lime stone.

Gaseous and dust emissions will be abated using state-of-the-art environmental abatement equipment, namely:

- the flue gas desulphurisation system (sulphur dioxide),
- the electrical precipitator (dust).

A tangential furnace equipped with low emission burners and two rows of OFA air nozzles will be used in order to achieve low emissions of nitric oxides (agreement with the emission standards will be assured in this way).

Waste management will be optimised. For instance gypsum from the flue gas desulphurisation system will be used as a commercial product. Ash will be stored on the new ash landfill, which has been appropriately designed to prevent any impact on soil or groundwater environments.

Liquid waste will be used as supplement of water losses in selected technical processes in order to reduce the clean water intake from the Biały Ług equalizing water reservoir.

• **Positive ecological effects of project, which have been considered include:**

1. Significant reduction of emissions into the atmosphere from 2016, following the shut-down of power units no 1 and 2. This will improve ambient air quality and will reduce the risk of respiratory illnesses. There will be an overall reduction of acid deposition in the environment; this will have an impact on agriculture and forestry management.
2. Wastewater discharge will be completely eliminated, helping to ensure that water quality standards are met.

6. SCHEDULE AND MONITORING

The consortium headed by Alstom will be responsible for environmental protection management aspects during the construction period.

Following initial start-up, environmental protection management aspects will be devolved to specialized sections in the Bełchatów Power Plant.

The new power unit will be equipped with an automatic system for monitoring the pollutant emission to atmosphere.

The following parameters will be measured in a continuous manner:

- concentrations of sulphur dioxide, nitrogen, dust, carbon monoxide,
- oxygen content in the flue gases,
- flue gases flow rate or dynamic pressure of flue gases,
- flue gas temperature,
- flue gas pressure.

Continuous measurements of ambient air will be undertaken in the two existing measurement points located in Bełchatów and Parzniewice.

Monitoring of waste management will include record keeping of waste types produced, volumes of specific types of waste produced and the waste handling procedures.

Additional monitoring will be carried out with respect to the volume of surface water taken from the Biały Ług reservoir for the process purposes and the volume of underground water abstracted using groundwater wells located in the locality of Wyrębisko Langowa-Słok. This water will be used for potable and domestic purposes. Wastewater monitoring will also be undertaken, including the volume for the different types of wastewater: industrial wastewater, rainwater and sanitary wastewater.

Measurements concerning the level of noise emitted to the environment will be also carried out (once every two years).

In order to comply with the requirements as set out by the IPPC Directive, and with regards to the use of Best Available Techniques (BAT), EBSA will prepare and implement the plan of activities aimed at the environmental protection. The environmental management plan will include issues connected with limiting emissions, maintaining of proper operations and other issues related to environmental protection and safety at work within the grounds of the power unit and within the area where auxiliary operations are carried out, including the waste landfill site. The Environmental Management Plan will be implemented using the Company's Environmental Management System and will address emergency and accident planning at the plant.

Before bringing new power unit into operation, BOT Elektrownia Bełchatów S.A. will update the current Integrated Permit (IPPC Permit).

7. PUBLIC CONSULTATIONS

The Environmental Impact Assessment process required that public consultations are undertaken as part of this process. This is a requirement of Polish as well as international standards and practices.

In accordance with these legal requirements, the developer has planned and executed a Public Consultations Plan.

The purpose of the consultation process will be to receive and consider opinions on the construction and operation of the new 833MWe power unit in Bełchatów Power Plant. The consultation process is an integral part of decision-making and allows public concerns to be discussed and as required mitigated.

Preparing of the consultation plan was preceded by identification of interested stakeholders, which include both government and local and national non governmental organizations (NGOs) as well as the general public.

The consultation plan includes a mechanism of ensuring that stakeholders are informed of the project using public media. Pursuant to Polish requirements a formal procedure will take place as part of the planning and subsequent building stage of the project.

The public consultation process will begin with the publication of information about the project. This information will be available in TV, local radio as well as local papers, on BOT and Bełchatow Power Plant Internet web sites. Its content will include notification of public meeting dates and their location as well as access to a non technical summary of the Environmental Impact Statement (EIS) and the report itself.

The Environmental Impact Statement and the non technical summary will be made available on BOT, EBSA, EBRD's websites during administrative proceedings. The same reports will be available on Internet web sites of proper administrative bodies

8. INFORMATION SOURCE

The environmental impact statement (EIS) report has been prepared with the usage of the materials prepared previously in the course of the project preparation, including:

1. Assessment of the environmental impact of the Bełchatów II power plant, prepared by "Energoprojekt-Warszawa" S.A.
2. Integrated Permit, dated March 31st, 2003.

The Investor makes the following materials available

1. Non Technical EIA summary in Polish and in English
2. The Integrated Permit in Polish.
3. The environmental impact assessment report in Polish and in English

The above-mentioned materials are available at the following places:

- The Office of the Commune Kleszczów
- The District Government Office in Bełchatów
- ELBIS company
- BOT-Elektrownia Bełchatów S.A.

Additionally, the above-materials are made available on the website www.elb.bot.pl. An environmental summary and links to the non technical summary will be available on the EBRD web pages (www.ebrd.com).