

## Project Summary

### Organization

Centrum Systemów Softdesk

### Solution

Power Generation

### Location

Rybnik, Silesia Province, Poland

### Project Objectives

- Design and produce technical documents for the reconstruction of the EDF Polska coal-fired power plant and modernize a 200-megawatt power unit at the power station.
- Automate the design phases, from creating the 3D model to generating the bills of material.

### Products Used

OpenPlant™, AutoPIPE®, and MicroStation®

## Fast Facts

- OpenPlant was used to create the 3D design model and the isometric drawings.
- AutoPIPE was used to directly export designed pipelines, allowing greater visibility of the designs across disciplines.

## ROI

- The simplicity of making model changes was the most significant advantage of using Bentley applications, and it reduced design time as well as project costs.
- The team automated time-consuming processes, such as issuing bills of material and creating isometric drawings, by using Bentley applications.

# CS Softdesk Creates Documentation to Reconstruct a Coal-fired Power Plant

Bentley's OpenPlant and AutoPIPE Automate Design and Production

## Reconstructing a Coal-fired Power Plant

One of the largest power plants in the upper Silesia region, the EDF Polska S.A. coal-fired power plant is located in Rybnik, Poland. The power plant is in the most industrialized region of Poland, where most of the hard-coal mines and hard-coal plants are located. The plant was built in the 1970s, with eight generation units commissioned from 1972 to 1978. The plant has an installed power generation capacity of 1,775 megawatts and an average annual electricity production of about nine terawatt hours. It has two 120-meter tall cooling towers and two large flue gas stacks.

Centrum Systemów Softdesk (CS Softdesk) was tasked with creating technical documentation for a reconstruction of venting pipelines, drains, injections, and desalination installations of the Rybnik Power Station as well as to modernize a 200-megawatt power unit. The large size of the plant posed a challenge for the project team. The project included 180 pipelines, so the team needed a way to automate each of the design phases, from creating the 3D model to generating the bills of material.

CS Softdesk has 21 years of experience with innovative technology and design management for gas, energy, and petrochemistry facilities. The organization works in numerical analysis, design, implementation of specialized software, industrial research, and consulting.

## Reducing Time While Improving Collaboration

To complete the project, CS Softdesk used Bentley's OpenPlant, AutoPIPE, and other applications. The 3D design model and the isometric drawings were created with OpenPlant, Bentley's interoperable 2D and 3D plant design and modeling software. AutoPIPE, Bentley's piping design and analysis software, was used to perform the compensation calculations.

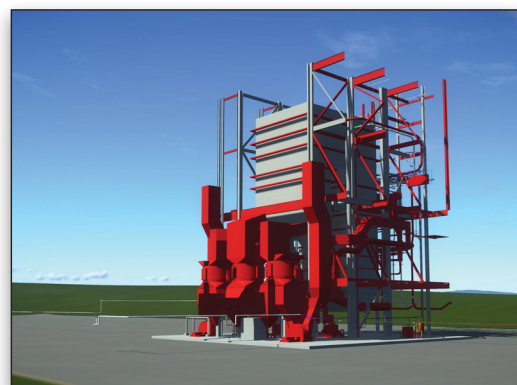
Creating a realistic visualization of the final project with Bentley applications allowed CS Softdesk to prepare a preview for the client. The preview, interconnected with the space available analysis, significantly improved the ergonomics of work. The team also directly exported designed

pipelines into AutoPIPE, allowing team members to see the designs and quickly verify and include corrections, if needed. Additionally, the team could use a variety of file formats, which enhanced the compatibility of the software. This ability was important for CS Softdesk, because the multi-discipline project team was large, dispersed, and have used various applications. Increased compatibility made it easier for all the participants to coordinate with one another.

## Applications Help Meet Project Timeline

By utilizing Bentley applications, CS Softdesk saved time and improved communication. Users created a set of documentation quickly by working with the model in OpenPlant. The application's performance optimization for efficiency was another benefit, as team members could open large 3D models on computers with low computational power. This saved time because team members did not have to wait for cumbersome files to open or find a computer with more power. Files were available to all participants, no matter their location, and they could modify and adapt the models as needed.

Bentley's applications improved the implementation process of the entire project by speeding up the design work and shortening the process of generating the required



*OpenPlant and AutoPIPE were used to create a 3D design model.*

*“Together with  
Bentley, ZRE  
Katowice S. A.  
combines modern  
design techniques  
with 60 years of  
experience.”*

*—Łukasz Matyaszek, Senior  
Designer, Centrum Systemów  
Softdesk*

**Find out about Bentley  
at: [www.bentley.com](http://www.bentley.com)**

**Contact Bentley**

1-800-BENTLEY (1-800-236-8539)  
Outside the US +1 610-458-5000

**Global Office Listings**

[www.bentley.com/contact](http://www.bentley.com/contact)

documentation. Utilizing Bentley software also decreased the document distribution time and automated each of the design phases, including the enhanced model creation capabilities, isometric drawing creation, and the issue of the bill of materials. CS Softdesk also used Bentley software to import the models that were created in other programs, enhancing data exchange between all project participants. Additionally, using a 3D modeling environment made collision detection

within the system components in the design phase easier. This accelerated process reduced the assembly time and the overall project time.

The most significant benefit of using Bentley applications on this project was their ease of use and the simplicity of making changes in the model. This capability simplified the procedure and reduced the cost of making modifications.