



CYEB Energy Industrial Assessment and Energy Efficiency Solutions

INDUSTRY / SEGMENT

Manufacture of Welding and Cutting Equipment

BENEFITS

- Opportunities for savings existed in energy consumption
- Annual cost savings of EUR 73 180
- Overall simple payback period of the total investment 13.3 months

APPLICATIONS

- Outdoor lighting system
- Indoor lighting system
- Intelligent drive control

ASSESSMENT DATE

November 2011.

IMPLEMENTATION PHASE

March - April 2012.

SUMMARY

The CYEB Group is the only company in the CEE region that provides energy saving solutions based on a review of all energy inputs and efficiency. Our experts carried out complex energy audit programs at the local subsidiaries of a leading edge global company in Bulgaria, in the Czech Republic and in Hungary. This case study is focusing on the recommendations prepared for the Hungarian subsidiary. Based on the analysis of the gathered data from the Hungarian plant, the assessment team developed 4 recommendations, of which 3 have been implemented. The recommendations focused on areas of energy conservation regarding lighting and compressed air, as well as reducing energy consumption of motors/drives. Further results from this assessment are highlighted throughout the case study.

COMPANY BACKGROUND

Our customer is one of the most significant manufacturers in the world in the production of welding and cutting equipment and consumables. The brand is synonymous with world leading expertise in key areas as:

- Manual welding and cutting equipment
- Mechanized cutting systems
- Welding automation
- Welding consumables

The plant in Hungary manufactures welding consumables. In the 15 000 sq m plant work approximately 200 employees and the facility operates on a 2-shift basis.

Energy Saving Opportunities at the facility in Hungary

Recommended Action	Annual Resource Savings (kWh/year)	Annual Cost Savings (EUR)	Implementation Cost (EUR)	Simple Payback (months)
Outdoor lighting system	32 400	3 720	3 680	11.8
Intelligent Drive Control	115 300	13 200	7 730	7
Indoor lighting system	490 006	56 260	69 800	14.9
Totals	637 706	73 180	81 210	13.30

ASSESSMENT APPROACH

The assessment phase started with a kick-off meeting with the managing director and senior managers of our customer who presented the core and supporting processes of the facility. Based on the gathered information a „walk-through“ site visit with the participation of local experts was carried out. In order to precisely calculate the potential energy savings pilot systems were implemented for the drive controls and the lighting system. Based on the measured data the team performed analysis to determine the efficacy of possible improvements. A formal report was drafted and submitted to our customer for evaluation and implementation at the end of November 2011.

RECOMMENDED ACTIONS

The table above summarizes the specific recommendations that were made during the assessment and were implemented in the plant. The original projections of savings & capital costs identified during the assessment have been established through engineering analyses and post-implementation measurement.

OUTDOOR LIGHTING

CYEB team has replaced the original 30 pieces 250W HgLi luminaires with 2x36W SKL luminaires. Although it was only about 30 lamps, but the difference in luminous efficacy is striking, 93 lm/W instead of 51 lm/W. CYEB installed special ÖKOSTART electronic starters designed for outdoor usage (FRIGOSTART) – reliably operating at -40 °C. In order to achieve additional energy saving by voltage reduction, low-loss toroid transformers were installed.

DRIVES/MOTORS

Electric motors work efficiently only at rated power. There are a lot of applications, where the load often falls below 70%, but frequency converter cannot be used. At our customer's facility CYEB team pilot tested and measured the Powerboss motor controllers for months. After the evaluation of the successful pilot period CYEB installed 6 Powerboss controllers for high-power pumps and extruder machines, achieving 24.6% energy conservation.

INDOOR LIGHTING

When it is about the lighting of a plant room, the starting point is the required level of illumination. Beside that there are limitations coming from the layout, the height of the room, the different functions of areas within the room (loading dock, open storage areas, aisles and so on). Our efficiency approach advises, that we plan a lighting solution that provides the required illumination with the minimal electric energy consumption. From efficiency point of view the most important factor is the lm/W value of a given luminaire. At the facility the CYEB team has replaced the 510 pieces HgLi with 510 pieces 2x58W luminaires (Polylux linear tubes). We provided ÖKOSTART electronic starters and voltage reduction solution, thus maximizing the amount of energy saving.

RESULTS

Our customer increased significantly its energy conservation efforts with primary focus on reducing wasted energy consumption in lighting systems, motors and drives. These improvements have made a significant contribution to the profitability of the facility and have helped maintain its competitiveness.



CYEB, as a dynamically growing regional company provides its partners with complex, cost effective solutions by means of which they are able to reduce the volume and price of the energy they consume. We plan, implement and, if necessary, operate the energy saving investments. The efficiency of the projects we plan are always verified by means of metering after the implementation.