

Belwooddoors reduces electricity use by 17% by optimizing processes

Intellektualny Energomonitoring harnessed Centrica Business Solutions' Panoramic Power™ wireless sensors and PowerRadar™ to help Belwooddoors improve operational efficiency



Belwooddoors is a leading manufacturer of interior doors in Belarus for more than 20 years exporting its products to 21 countries worldwide. Production at its two manufacturing facilities include processing of wood materials through to the wrapping and painting of moldings. Presently, Belwooddoors are producing 1,000 door units daily.

Due to the energy-intensity in manufacturing doors including auxiliary equipment, such as compressor units and air purification systems, Belwooddoors consumes more than 300,000 kWh per month across its production sites. Belwooddoors' chief engineer was tasked to increase production output while at the same time reduce cost.

With more than 1,000 TCE (tons of coal equivalent) consumed annually, of which 37% is electricity, Belwooddoors identified its need for a cost effective solution that enables visibility of electricity consumption across its sites and operating equipment, benchmarking of electricity consumption per unit of production output, as well as enterprise-level management and control of available energy resources. Belwooddoors engaged with Intellektualny Energomonitoring Ltd., the exclusive reseller of Panoramic Power™ in Belarus, to explore solutions to address its needs.



energy reduction by adjusting scheduling of drying plant



reduction in CO₂ emissions



reduction in annual electricity consumption

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In addition to all the information we received from the drying chambers, we began to receive a lot of accurate data on energy consumption for drying in real time. This allowed us to start experimenting with the modes of operation, loading, and settings of various equipment.”

Gertsik Sergey Nikolaevich, Chief Engineer, Belwooddoors

Solution

Panoramic Power was installed across eight drying chambers, painting and woodworking shops, as well as in the molding section. The installation of sensors covering 30 measurement points and deployment of PowerRadar™ was completed within three hours, with no disruption to production operations, enabling Belwooddoors personnel gaining immediate and real-time data visibility into its electricity consumption.

Customer results

Prior to installing Panoramic Power, Belwooddoors utilized a local automated energy control system, consisting of electronic meters, that was unable to provide device-level energy consumption data. Since implementing Panoramic Power, Belwooddoors has gained actionable and real-time insights into how energy is consumed on a site and device level.

By turning off idling equipment during production and optimizing the sequencing of certain processes, Belwooddoors reduced its electricity consumption by 17% within the first six months - this represents a reduced consumption of 360,000 kWh annually. By sustaining this consumption level since 2017, Belwooddoors was able to achieve annual CO2 emission savings of 255 metric tons, which is the equivalent to taking 55 internal combustion engine cars off the road.

With real-time visibility of production-related energy consumption in PowerRadar™, Belwooddoors was able to better manage total electricity consumption during morning and evening peak tariff periods. For instance, the scheduling of equipment operation in the drying plant was adjusted for morning production without adversely impacting the wood drying process. By doing so, monthly power draw during morning hours has been reduced by more than 80 kW.

The chief engineer of the Belwooddoors enterprise, Gertsik Sergey Nikolaevich, noted that the analysis of the data in PowerRadar™ enables them to begin experimenting with different operating modes of the equipment, to realize reductions in energy consumption.

“In addition to all the information we received from the drying chambers (humidity, temperature, etc.), we began to capture a lot of accurate data on energy consumption for the drying process in real time. This allowed us to start experimenting with the modes of operation, loading, and settings of various equipment. Having access to device level historical data enables us to select optimal modes of operation of selected equipment, thus allowing us to reduce the energy consumption of the drying process by more than 60%,” explained the chief engineer.

Forecasting and planning for operational costs has been an added benefit for Belwooddoors. With visibility into the costs of operating several large equipment units displayed within PowerRadar™, adjustments can easily be made for the use and loading of any equipment at an enterprise level.

By using the ‘heat map’ function in PowerRadar™, the company was able to determine the optimal time for the operation of the equipment and the hours of maximum load.

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We were able to select optimal modes of operation of the given equipment for the period between 2017 and 2020, thus allowing us to reduce the energy consumption of the drying process by more than 60%.”

Gertsik Sergey Nikolaevich, Chief Engineer, Belwooddoors