

MOTOR MANAGEMENT SUCCESS: A Niche Company's Answer to Electric Motor Efficiency

results

- Completed and are actively using an inventory and database with EM2 software of over 175 motors to aid in repair/replace decisions.
- Using EM2 to make decisions about motors before they fail, and basing those decisions on analysis of operating costs.
- Using a current logger to create load profiles to assess proper sizing of plant motors, identifying oversized motors and replacing them with smaller horsepower motors.
- Implemented the decision to buy premium efficiency motors. The first 200 horsepower motor replaced will save close to \$8,300 per year – a payback period of less than 12 months in energy costs alone.
- Increased inventory control and improved storage procedures with new database documentation.

Dale Manz, Project Manager at Alder Creek Lumber, designed and oversaw an upgrade of the mill's entire production line to improve efficiency and productivity. The net result was an increase in plant throughput, a significant achievement on its own. But Manz also looked at plant operating costs, primarily electricity, and that meant looking at motors.



Alder Creek Lumber is a stand-alone sawmill operating near Portland, Oregon where they manufacture 2x4 boards for sale to the high-end building sector.

project overview

Alder Creek Lumber in northern Oregon had a project in mind. A stand-alone sawmill with a strong niche, the company provides 2x4 boards to the high-end building sector. Despite the company's success as a niche provider, Alder Creek recognized that market competition and rising costs would inevitably pressure its profit margins. Wanting to upgrade their facility, maximize production and make the process as energy efficient as possible, Alder Creek embarked on a modernization program.

To design and oversee the upgrade, the company brought in Dale Manz, a project manager with eight years of experience consulting worldwide in the area of industrial systems service and improvement.

Upon his arrival at Alder Creek, Manz discovered that a majority of the company's fleet of motors, numbering about 175 and ranging in size from 3 hp to 200 hp, had been in service since the plant was first built in the late 1950s – over four decades ago. When a motor failed, it was serviced, if possible, and kept chugging along. As Manz saw it, the job was to assess the entire motor fleet and determine maintain and replace options – not an insignificant task even in their small mill.

Through one of his supply vendors, Manz heard about a seminar on electric motor efficiency to be held in nearby Longview, Washington. Jim Williams, field consultant with the seminar's sponsor Electric Motor Management (EMM), spoke at the meeting. The motor management sessions are meant to heighten awareness of energy costs and to provide a means for companies to get a handle on controlling those costs. To this end, Williams demonstrated EM2, a motor data-collection and analysis software offered free of charge from EMM to companies in the Pacific Northwest.

Manz came away impressed and immediately contacted Williams at EMM for an on-site consultation. He then established a timeline and enlisted employees to gather motor data for entry into the EM2 software, creating a database of motor information for the entire plant.

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lessons learned

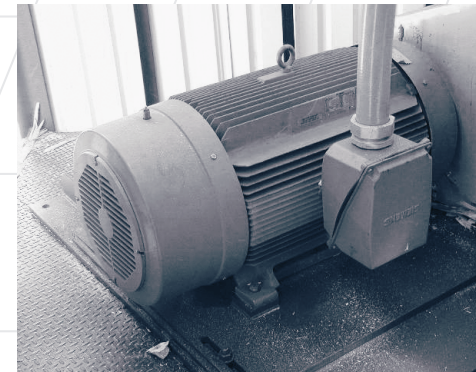
Once data was entered and analyzed, as Manz put it, "I was able to show the managers that when a motor breaks down, rather than sending it out to rewind, it can be more cost effective to replace. I did probably two comparisons and they were convinced right away – the numbers are right there in black and white." With EM2, cost analysis for a repair/replace decision is obvious.

In April 2002, the first replacement of an old 200 hp motor with a new, premium-efficiency one was undertaken. Efficiency for the old motor had fallen to 82%, whereas the new one at 96% offered energy savings close to 15% or over \$8,300 annually – giving a payback of less than twelve months.

But the exercise proved to save on more than just energy costs. Employment of the premium efficiency motor also reduced electricity peaks to a lower level, flattening operating energy demands. Manufacturing downtime has also been cut significantly, resulting in an increase of product volume. Obviously, an increase in revenue with a decrease in load means a stronger bottom line.

Manz discovered another way to put the EM2 software to use, this time to analyze proper motor sizing for various applications in the plant. Oversizing of motors is a common occurrence in older mills and one that offers quick and easy opportunities to reduce energy usage. Manz bought a current logger to record motor amp draw over time, then created motor load profiles to determine if sizing was appropriate. Using EM2 software for the performance analysis, he was able to identify downsizing opportunities – such as the replacement of a 20 hp motor with a 15 hp.

As motors fail, they will continue to be replaced with premium efficiency motors, very likely at decreased hp, maintaining the trend to energy and bottom line savings. "EM2 has become a major tool for our operation in deciding when to rebuild or replace a faulty motor," said Manz. "Once I finish here, I'll take it with me – it's been a very useful tool."



This new NEMA premium efficiency 200 horsepower motor replaced an older motor serving a chipper at the mill. Efficiency for the old motor had fallen to 82%, whereas the new one at 96% offered energy savings of over \$8,300 annually – giving a payback of less than twelve months.

project partners

Portland General Electric

Northwest Energy Efficiency Alliance

Motor Management Success Story, April 2002.



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