John A. McFarland, Chairman & CEO, Baldor Electric Company

As I write this article in early July, I've just been notified that one of our principal electricity providers will be increasing its price by 25%. If you haven't looked at your electricity bill lately and compared it to the price you were paying a year or two years ago, you will be shocked! Electricity prices have been rising and many experts forecast that these increases will continue.

Electricity costs sometimes are overlooked when developing productivity and cost reduction plans. Often the person who pays the electricity bill and understands its impact on the company's results is not the person who buys the products that consume electricity and create this cost. In many companies, Manufacturing Engineering purchases new equipment, the Maintenance Department purchases replacement components (such as motors) and the Finance Department pays the electricity bill. Understanding what makes up your electricity bill and addressing those components when a purchasing decision is made can help to control rising energy costs at your facility.

According to the United States Department of Energy, industrial electric motors make up about 60% of a typical manufacturing company's electricity bill—*and up to about 90% of a mining company's electricity bill.* Electric motors have different efficiency ratings, just like automobiles. Your company can buy a 10 horsepower motor rated 89.5% efficient or a NEMA Premium® efficient motor at 92.4%. The difference in price between the motors is about 30% and that premium usually will be earned back in two years or less, depending on your power cost.

Since motors are generally very reliable, often lasting 15 or 20 years, it's important to make the right decision up front when buying motordriven equipment or replacing a motor that has failed. Many manufacturing companies, such as ours, have thousands of motors in operation and spend millions of dollars on electricity to run them.

There are several things a company can do to control the cost of running electric motors. First, don't oversize the motor for the application. Most motors have their highest efficiency near their rated load point. Over-sizing motors sometimes causes them to operate less efficiently and more expensively.

Select a NEMA Premium high efficiency motor when a motor fails. Often, motors that fail are 20 years old or older. Motors manufactured 20 years ago were not as efficient as those made today. When putting motors on variable torque applications, such as fans and pumps, consider using an inverter to tune the motor to the required output of the fan or pump the motor is running. In some cases, this can save as much as 40% on energy consumption.

Remember that single phase motors are not as efficient as 3-phase motors. Always check to see if the single-phase motor can be replaced by a 3-phase motor.

Lastly, when purchasing new equipment, only specify high-efficiency motors. They may cost a little more on the front end, but payback is quick and the energy savings will last the lifetime of the motor.

In industry today, we face many challenges including the high cost of energy and foreign competition. Your electricity bill is part of your cost and it is a cost that can be controlled in part by using high-efficiency motors and drives. **MT**

This article is part of Maintenance Technology's 2008 Industry Outlook, the annual executive roundtable. Columns from each of the 14 thought leaders who participated can be found at the following link: http://www.mt-online.com/article/0808-industry-outlook

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