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Precision Machined Products Association

Energy Trends In Manufacturing

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Every once in a while, I get to see a report from a branch of the United States government that reinforces my feeling that all of us in manufacturing are way ahead of the bureaucrats in Washington. This week, I received a Manufacturing Sector Report from the Environmental Protection Agency covering motor vehicle parts manufacturing. (View the report at www.epa.gov/sectors/ energy/index.html.)

The intent of the report appeared to determine what portion of this industry sector's energy requirements could be converted to alternative fuels. The report's conclusion that no fuel-switching trend is expected was hardly a surprise. (We get our energy primarily from public utilities.) However, some of the report's other points are well worth considering for those in the precision machining business. As you will see, many of these points have been on our to-do list for a long time.

InThis Issue

- Energy Trends In Manufacturing
- Member Profile: Ray Industries, Inc.
- PMPA's National Technical Conference Tracks To Success
- Recent Listserve Topics
- Why Join PMPA? Education
- PMPA Calendar

"Replacing aging equipment with state-of-the-art equipment offers potential for efficiency improvement." If you view our industry as converting raw materials into engineered parts by the application of energy through our machines, then the first and most obvious place to start looking for efficiency improvements is at the machines themselves.

Fortunately, our industry has not waited for a wake-up call from the government to take action on machine efficiency. In order to compete in global markets where foreign competitors enjoy a playing field tilted in their favor, U.S. manufacturers have been investing in improved technology and new equipment to help them stay competitive. The message from one presentation at this year's National Technical Conference was quite succinct: "Just say 'NO!' to junk machines."

"Facility lighting and HVAC improvements offer additional improvements for energy sav-

ings." The first time I asked a shop owner about his biggest energy usage, I was surprised by the answer. I was sure that the owner would say it was the production machines. But, I was told that the lion's share of the bill was lighting and HVAC. So it makes sense to ensure that the lighting and HVAC equipment in your shop is efficient and best for your needs.

I have been in several shops that have recently updated their lighting. These shops were surprised at the positive side effects reported: better morale, improved quality and less time spent to complete tasks. While these results alone probably wouldn't suffice to get the cost justification signed off in most places, these are very positive additional benefits to go along with that reduction in the monthly electric bill.

"System optimization for compressed air, exhaust and make-up air systems is a best practice." This one made me chuckle. Early in my career, I was assigned to a project team considering the purchase of a new air compressor for my department at a major steel company. The accountants had sent down an MBA to investigate the situation and write up the proposal. He came up with a 14-month payback on a huge new compressor and presented the proposal for the department head to sign. The supervisor of the die and tool department, a grizzled veteran of the machine trades and no friend of "college boys," told the department head not to sign it. He said, "If you just have your maintenance crew stop all the (expletive) air leaks, you will have all the air that you need." Sixteen hours later, we did indeed have more than enough air for our operations, and the shop was a whole lot quieter, too. System optimization is often a synonym for good preventive maintenance.

(Continued on page 2)

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Energy Trends...continued

Technology has changed, and there are many new types and sizes of compressors available. Getting one sized right for your demand is the first key to reducing energy waste-after you have eliminated the leaks in your system. This topic has come up frequently on the PMPA's Technical Listserve, where members share their best-practice experiences with other members to keep North American machining shops competitive and sustainable. Go to www.pmpa.org and scroll down to "Topic of the Month" to see what the industry is talking about on our Listserves.

"Process improvements provide a less capital-intensive way of achieving energy savings."

I looked, but I didn't see Captain Obvious as the author of the EPA's report. This conclusion seemed to be so obvious that it made me wonder: "Did the folks at the EPA think we didn't know this?" The drive for process improvement in the precision machining industry is ubiquitous. Every shop that I have visited has been able to show me evidence of its latest "process improvement," usually one made that day and certainly that week. Many shops have formal process improvement teams and meetings. Micron Manufacturing's Lean Team success story was documented in May 2005 in the PMPA section of *Production Machining*. (See www.productionmachining. com/columns/0505pmpa1.html.)

This is only one of a host of similar programs implemented at PMPA member shops throughout the United States and Canada. The expectation for continuous improvement is universal throughout the industry among the managers and associates I meet in my travels. We'll be gracious and thank the folks at the EPA for reminding us that our process improvement efforts make good energy sense as well.

"Reducing the time involved in change-overs decreases idle running time and saves energy."

If ever there was an area this industry has had to embrace to survive, it has been the reduction of non-value-added setup time. I remember the first time I saw a shop document its "lean setup" initiative, the savings identified by implementing the program were almost \$500,000. Another \$420,000 was realized from the additional machine capacity made available to the shop because of the reduced setup times. That's almost \$1 million of savings.

"The drive for process improvement in the precision machining industry is ubiquitous."

Reduction of setup time on the shop's multi-spindle automatic machines from more than 16 hours to less than 6 hours was worth every bit of the time and effort spent. In a world where foreign companies enjoy benefits of pegged currency supporting exports, government subsidies, favorable loan terms and cheap labor not given the same environmental and safety protections, the North American precision machining industry has stayed sustainable by wringing every last bit of waste we can out of our processes. We're glad that the U.S. EPA agrees that it's the right thing to do.

To order the PMPA Educational Foundation's "Reducing Setup Time" DVD, contact Monte Guitar at (440) 526-0300 or mguitar@pmpa.org.

Why Join PMPA? E D U C A T I O N

The key to competing in a global market is knowledge along with the tools necessary to work smarter and faster. The association's leadership understands that the industry's future is dependent upon an educated and highly trained workforce. PMPA is committed to providing high-quality programs and services to meet the needs of its membership.