A New Kind Of Intelligence

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Our third annual iteration of the IMPO Energy Intelligence Report has followed an industry all the more hungry for cost savings. As industrial manufacturers work to propel their businesses forward, they must choose between investing in the equipment they need, or falling behind in the face of fierce domestic and global competition. This annual report has been designed to help nurture ideas on energy savings, as well as provide education on purchasing habits, available technologies, and practical applications of the products and equipment that keep manufacturing companies running Lean and green.

Watch for parts two and three in our August and September issues, culminating with our Energy Intelligence Incentive Guide – a state-by-state breakdown of available tax rebates, credits, and other financial incentives to help manufacturers invest in energy efficient products and energies.

Embarking on our third year of IMPO's Energy Intelligence Report means we've been able to gain greater access into trends-based data from our readership, really getting at the key drivers behind manufacturers purchasing decisions when it comes to equipment with energy saving technology and features.

Based on our readers' answers to these questions about investments, a more coherent picture has begun to take shape. Ultimately, we intend to track trends over time, starting with this year's snapshot comparisons of our latest energy efficiency survey.

One thing we've learned since 2010 is that manufacturers are ramping up their spend when it comes to energy efficiency. In 2010, nearly 52 percent of survey respondents said they planned to purchase new equipment based on energy efficiency in the following six months. In 2011, 57 percent said the same, and our 2012 results showed another increase to 62 percent (see Figure 1). This incremental increase likely has its roots in an improvement in overall industrial spending, but it's also important to note the precision towards which manufacturers are evaluating these capital investments. Energy efficiency is perhaps becoming a more critical feature when businesses assess the needs of their operations, as an 'every penny counts' attitude dominates thinking patterns.

This attitude may translate further into what our survey respondents consider their priorities when it comes to equipment. Even with 62 percent planning to invest in the coming months, only eight percent of the total base put energy efficiency as a first priority. For more (60 percent), this feature is important, but not at the expense of other issues (Figure 2). This may relate back to overall product cost, but could also include vendor relationships, usability, or maintenance concerns. What hasn't

changed in the past several years is the group that says energy efficiency is its lowest priority – still lower than one percent, a figure steady throughout the life of the survey. For many — nearly 28 percent — energy efficiency is a consideration, but they find it becomes eclipsed by other concerns considered more pressing.

Problem Areas

When it comes down to the energy hogs within a plant, the usual suspects have emerged. For many survey respondents, things like air compressors, pumps, and valves, as well as general plant environment-type products (HVAC, fans, lighting, etc.) take top billing when it comes to energy efficiency concerns. While these two categories shared the spotlight, motors and drives were not far behind in terms of what survey respondents considered their least energy efficient (see Figure 3).

Readers suggest that the inefficiency behind this category within their own plants relates back to it being too expensive to replace existing equipment in exchange for more energy efficient models, something 52 percent of respondents claimed. This was the overwhelming reason our survey respondents cited, followed by a distant 20 percent who said it was simply the "natural quality" of the product. One respondent cited a system that runs full throttle, 24-7, and others cited the age of the equipment as it's primary downfall. One respondent said, simply, "Most equipment is not low energy use," indicating a surrendering to what some consider these "natural" qualities of equipment and their inability to work efficiently.

Ultimately, the majority of our group looks for an ROI (including energy savings) of one to two years, which may influence their desire to replace some more expensive or complex equipment in favor of a more efficient model.

Only seven percent say they have not purchased any equipment recently. Of the rest, 69 percent said their recent purchases were based “in part” on their energy efficiency, with nearly 10 percent saying these purchases were “wholly” based on this, and 14 percent saying “not at all.” Of those who have purchased any equipment recently, half said it was in motors and drives. Another 48 percent spent money on plant environment type equipment, 33 percent on pneumatics, and 21 percent on fluid handling.

Category Planning

Looking at the other end of the sustainability spectrum, we asked readers their thoughts on consumables, specifically their interest in purchasing green or organic products, or those derived of recycled/recyclable materials. If available in these forms, survey respondents showed interest in the following areas:

- Cleaning supplies (59 percent of respondents)
- Towels/wipes (57 percent)
- Degreasers (46 percent)
- Absorbents (44 percent)

- Lubricants (36 percent)
- Paints/coatings (31 percent)

18 percent of our survey respondents claimed to be uninterested in any products of this type in green or eco-friendly versions.

From a capital equipment standpoint, 60 percent of respondents say that they're looking to upgrade to greener models of their plant environment equipment – cited previously as a problem area. Motors and drives come in second, followed by pneumatics. The same segment of respondents who said they were disinterested in green consumables (18 percent) also said they were not looking to upgrade any of their existing capital equipment in favor of greener or more energy efficient models (See figure 4). Write-in answers in this category include things like boilers, fans, cookers, welders, and motion sensors.

In A Perfect World

As a follow up, we asked if survey takers were able to implement one technology or product – existing or theoretical – into their plants in order to increase energy efficiency, what would it be? Many came back to the aforementioned pneumatics and plant environment wish lists, citing things like HVAC and lighting. Other responses included:

- Solar power with battery backup and storage.
- Reusable shipping materials.
- Air compressors with variable speed drives.
- Perfectly insulated steam piping with no joints and leak-proof valves.
- Reduce power consumption from electrical equipment running but not under load (motors and welders).
- On-line monitoring of energy consumption to engage all employees.
- Automated packaging.
- Replacing pneumatic valves with electric actuators.
- Waste heat recovery.
- Natural gas in place of propane and heating oil.

Ultimately, it appears the same energy-wasting equipment is driving manufacturers to invest, but the stakes seem to get higher every year. When targeting low hanging fruit to reduce overhead becomes a requirement — and not just an option — businesses are looking to energy use to pare down unnecessary costs. As you can see based on this year's readership survey, you're not alone if you have some problem areas. The real question is, will you take the right steps to address them before you let easy savings slip through the cracks?

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