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As you may have deduced from my name, I’m Sicilian. Anyone familiar with Sicilians will understand the family-bonding thing. The Livoti family was no different. When I was a young impressionable lad, our cousin Rosalie came from Cinisi, Sicily, our family home, for an extended visit. (FYI: Cinisi, settled in 1383, has a population of around 10,000 and is noted for a festival of buttermilk curds and dairying products.)

Rosalie was a very smart and attractive middle-aged woman who had minimal command of the English language. She could quickly see through the braggadocio of her many suitors. I would often hear her saying something that sounded like “Figgudebodi” when brushing off—*or “escorting”*—
a less-than-acceptable boyfriend to the door. I know now that she was really trying to say “forget about it.” (Forget about what? Let your imagination run wild.) But I digress…

What does my memory of cousin Rosalie’s love life have to do with pump efficiency? I guess it boils down to how she looked at things—*and her ability to figure out what was important and what wasn’t.*

The U.S. Department of Energy (USDOE) is in the process of developing energy-efficiency standards for pumps. Sound familiar? Most readers will be familiar with the motor-efficiency standards Epact (Energy Policy Act of 1992) and, more recently, EISA (Energy Independence Security Act of 2007). As of December 2010, most AC motors have been required to meet a specified efficiency—*in many cases, this spec is less than 2%.* Now, the USDOE wants to control pump efficiency. Like motors, the required improvement would be in the single digits.

Why this intense focus on *component* efficiency instead of *system* efficiency? Simple: It’s relatively easy to document and legislate—
*just like motor efficiency*
. The big savings opportunity, however, is in “total system efficiency,” an approach that’s endorsed by the Hydraulic Institute (HI).

HI has a straightforward explanation for concentrating on system efficiency—*the motor and pump react to system requirements.*
A pump responds to the system resistance or lack thereof; the motor follows right along, delivering the required horsepower.

**Let’s run some numbers**
Say a system is currently producing 1000 gpm @ 150’ of head. Its total energy consumption at $0.07 KWh for 6800 hours is $33,794. Since the system doesn’t require the design flow, the pump is throttled, creating 60’ of friction loss across the discharge valve, resulting in a total system efficiency of 40%.

- Increasing *pump* efficiency by 3% would improve *system* efficiency by 1%, thus saving $1252.
- Increasing *motor* efficiency by 2% would improve *system* efficiency by 1%, thus saving $704.
- If the friction loss were to be reduced by just 30’, *system* efficiency would be improved by 15%, thus generating total energy savings of $9400.

The above example only addresses energy savings. There’s an added benefit in reducing the excess friction: It’s pump and system reliability, and what operation can’t use a little more of that?

So, is improving pump efficiency—*as opposed to improving “pump system” efficiency*—the answer to reducing energy consumption and enhancing your organization’s bottom line? You be the judge. If you asked my savvy cousin Rosalie for her opinion, she would probably just tell you to “Figgudebodi!”
**MT**

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