Optimize Your Pumping Systems

Pumping systems account for nearly 20% of the world's energy used by electric motors and 25% to 50% of the total electrical energy usage in certain industrial facilities.Significant opportunities exist to reduce pumping system energy consumption through smart design, retrofitting, and improved operating practices.

Many pumping applications with variable-duty requirements offer great potential for savings. A proper discussion of pumping considers not just the pump, but the entire pumping "System" and how the system components interact. The causes of poorly performing pump systems are not always obvious.

Some causes of inefficient pumping systems are:

- Poor process control
- Inefficient components
- Maintenance problems
- Poor inlet & outlet conditions

Benefits of Improved Efficiency

- Energy cost reduction
- Improved system reliability
- Increased time between repairs
- Reduced fugitive emissions
- Increased staff productivity
- Reduced maintenance costs
- Improved product quality
- Increased profitability
- Reduced life cycle costs

To get started in optimizing a system, look for likely candidates such as:

- Large systems
- Systems with high operating hours
- Problem Systems
- Production critical systems

Here are some ideas on ways to save energy in pumping systems:

- Eliminate unnecessary uses
  - Schedule pumps to turn off whenever possible
  - Avoid recirculation through bypass lines

- Minimize throttling

- Assess pumping system suitability for current application. Many installed systems are oversized, providing an opportunity to:
  - Install a smaller impeller or trim the existing one
  - Remove stages
  - Downsize pump
  - Install a smaller and/or more efficient pump motor
  - Replace worn impellers

- Reduce pump speed or install appropriate speed control devices
  - Install a slower speed motor
  - Change sheave diameters
  - Consider variable speed drives

- Consider alternative pump configurations
  - Pony pumps
  - Multiple pumps in parallel

- Improve O&M practices
  - Establish basic system maintenance checklists & schedules
  - Establish a predictive maintenance program

- Improve piping configurations
  - Use larger pipe sizes
  - Eliminate unnecessary turns, valves & accessories
  - Optimize pump inlet & outlet piping

If you need assistance in analyzing and improving your pumping systems, contact us. We will introduce you to our program.