Some Simple Steps Help Reduce Power Costs In Producing Fields

One of my favorite things about my job is the opportunity to learn about many sides of the oil and gas industry. As part of my work, I get to see the latest in technology, but I also get to know more and more about the issues operators face in the field. So often, the path to success in the oil patch is a combination of common sense and modern technology. I experienced that combination of sensibility and technology at a one-day workshop in Wichita, Ks.

As many independent operators know, one of the most expensive components of oil and gas production is electricity, particularly in old fields that have been producing for many years. Additionally, operators have been drilling in fields where electric lines have yet to be run. The speaker, Mike Paik, has been an electrical engineer in the oil field for more than 30 years, and his approach to saving power in the field is not only easy to implement, but if done correctly, can improve the economics of any operation.

Paik began with a simple discussion of a typical operator’s power bill. It seems simple at first, but Paik asserts that a basic understanding of one’s bill and details about what he is being charged for is vital for making decisions that ultimately will save power and money. Using bills provided by regional operators, Paik highlighted each charge, including capacity, customer, energy and environmental charges, to name a few. He also discussed rate information, how rates are set, and transmission delivery charges.

After talking about the details of the common power bill, Paik went on to discuss how building a relationship with one’s power provider can be a key element in getting the most value for one’s energy dollar. He suggested having field personnel get to know the electric company’s field people to develop the on-site relationship they would with any service company.

He encouraged attendees to meet with their utility representatives on a regular basis. This relationship will help operators learn whom to call for different situations, offer an opportunity to explain business problems, and find out what the utility can offer the operator and what the operator can offer the utility. Often, the utility can provide information on what power rates will be later in the year, in the following year and even two years out, giving folks the chance to plan accordingly.

Once one understands his bill and has developed a relationship with his power provider, he can begin managing power costs directly from his office. Paik encourages operators to ask questions such as:

- What is our monthly target for power costs?
- Do we have a goal to reduce power costs?
- If so, by how much?
- Do we have internal reports about power usage and when do we share them?

He advocated putting someone in the office in charge of power costs and holding that person accountable for helping achieve power reduction goals. He suggested having that person look at how power costs change over the life of a field and to begin thinking about what effect a 10 percent reduction in power would have on incremental production and reserves.

Finally, after each of these steps is complete, Paik takes his approach to the field. He advises learning who is in control of the field equipment that uses power. He suggests providing that person with an idea of the cost of running that equipment, and letting him know the operation is looking to reduce power costs. Sharing information with field staff about accounting data and the power bill can prove useful as well. Finally, helping that person understand the usage rate of particular equipment can be a key to successful power reduction.

After all these items have been addressed, Paik moved on to changes in process and system equipment. He suggests looking to optimize a company’s system through mechanical changes as well as the electrical changes associated with high-pressure water injection, gas treatment, and water separation plants. He also discussed how to optimize submersible lift wells as well as rod lift wells, and provided a basis for understanding oil field motors.

All in all, the idea of marrying common-sense low/no cost options with equipment changes does what most independent operators seek to do: maximize their return while reducing costs as much as possible. Some simple modifications to processes and staffing can make the difference between having a field of moderately successful wells and having a field of solid producing, optimized wells.

A video copy of Michael Paik’s presentation may be accessed on the University of Kansas Tertiary Oil Recovery Project website at torp.ku.edu.