Utilities and Industrial Customers: Partners in Energy Management

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In today's competitive environment, many utilities are not only pursuing new industrial customers, but actively working to help existing industrial customers become more competitive and profitable.

There is fierce competition among corporations, but there is also competition between plants within the same company. As several plants within one company become consolidated, each strives individually to survive. At Virginia Power we are working with our industrial customers to help them become as efficient as possible while holding down energy costs.

One of the most valuable tools that utilities have to offer for energy management is the industrial energy survey (audit). Within the utility there is usually a department set up and trained with all the proper tools and expertise to perform energy surveys. Let's face it, who should know energy better than the utility company. On the other hand, industrial plants know how to operate their own business better than anyone else. If these two groups can work as partners, both can receive immediate, as well as long lasting benefits.

A successful and lasting energy management program will have the endorsement of the company's top management. A concise corporate energy policy, employee involvement, a reliable progress reporting system, and employee training and responsibility are all vital elements for success. A winning program is an ongoing process, not a one shot effort.

At Virginia Power, we offer a wide range of energy surveys depending on the customer's needs. A survey may be as simple as a walk through of the customer's site with Virginia Power engineers.

However, a more extensive energy survey may span several days and entail third party expertise.

The remainder of this article will focus on our (Virginia Power) success of partnering with our industrial customers and a third party audit team from Virginia Polytechnic Institute & State University (Virginia Tech) known as the Industrial Energy Center (IEC).

The IEC is part of Virginia Tech's College of Engineering and is funded by Virginia Power, Virginia's Center for Innovative Technology (CIT) and United Cities Gas Company. The IEC trains engineering students (undergraduate and graduate), which, in turn, provides a more qualified work force for industry. Services provided by the IEC include energy surveys, in-house energy management training, research and technical assistance, all at no charge to the customer. The goal of the energy survey partnership is to help companies use energy more efficiently while improving processes and diminishing environmental impact. By taking the steps recommended by an energy survey, companies operating in Virginia can become more profitable, thereby encouraging industrial growth and job opportunities.

Generally, the industrial customers most likely to benefit from an energy survey are those with limited in-house engineering expertise. Companies in this situation tend to devote their limited resources to core business. The utility, partnered with a third party, can provide the training, expertise, and technical resources necessary to implement a strong energy management program. Knowledge of customers' electrical profiles and an understanding of their processes have allowed Virginia Power's field representatives to develop strong ties with their industrial customers. These relationships and knowledge of the customer combine to help Virginia Power decide which industrial customers will benefit the most from energy surveys.

Surveys are conducted by a team which includes members from the plant, Virginia Power representatives and IEC representatives. This team looks at every aspect of the company's energy system. A survey report covers such areas as steam systems, motors, variable speed drives, compressed air, lighting, waste heat recovery, peak load shifting, power factor corrections and payback calculations for installing new energy efficient equipment.

For the energy survey to be successful, Virginia Power requests that the following items be provided and/or addressed prior to the

actual survey:

1. Recommend that the customer create an energy management team of plant employees (three to five) from critical areas of the plant.

2. Obtain all fuel billing information other than electrical (gas, coal, oil, etc.) for the previous twelve months.

3. Obtain a floor plan of the plant and office areas.

4. Request a conference room for the entire two days for use by the energy management team.

5. Ensure that a plant electrician is available to assist with electrical measurements.

6. Obtain promotional/educational literature of the company to assist in the understanding of their process.

7. Identify areas of concern that customers would like to focus on during the survey.

8. Confirm that the customer has completed and returned a permission/release form which gives Virginia Power permission to release electrical billing information to the IEC. This information remains strictly confidential and is used by the IEC for survey purposes only.

It's imperative that the plant employees become involved in the survey process. To borrow a quote from Bill Mashburn, founder and co-director of the IEC, "employees are probably the greatest untapped resource available for energy management of the plant." Most are more than willing to participate in an energy program. They usually just need a little training and the opportunity to take part.

The human side of the survey process cannot be overemphasized. We can come up with all the right answers and calculations, but you've got to have properly trained and willing machine operators, foreman, etc. to make a successful implementation.

The customer's energy management team plays a big part in this process. This team is generally responsible for developing an energy policy for the plant. Once the initial survey is complete, members of the team are capable of training other plant employees. This group also develops a reporting system to evaluate results once the program is in place. Of course, support from the plant manager or top management is absolutely necessary for initiation of the program. But, without continued top level support, the energy management measures will soon become obsolete.

A typical energy survey requires two days. The first day is focused on in-house energy management training, followed by a preliminary walk-through of the plant to gain an understanding of the customer's processes and energy concerns. Specific areas of need and opportunity are identified at this time.

On the second day, the survey team investigates those areas that exhibit the greatest potential for energy savings. Areas often examined are those that involve no or low initial capital costs, are relatively easy to implement, can provide a very attractive economic payback, and/or relate to process improvements.

Based on their findings, the survey team from the Industrial Energy Center prepares a report which is sent to Virginia Power's survey specialists for review. The report details recommendations and includes a calculation of the simple economic payback. The report is then submitted to the customer and a follow-up meeting is scheduled between Virginia Power and the customer to discuss a course of action.

Virginia Power and the IEC have performed several energy surveys for industrial plants in Virginia. The results are reviewed on an annual basis and follow-up plant visits are conducted to ensure the continued success of the implemented energy management programs. Virginia Power and the IEC are always available to provide their industrial customers with technical assistance and support.

In the past, industrial customers have seemed skeptical that their utility company wanted to help them reduce their energy costs. Today, these same folks are looking to all resources that might provide a competitive edge. Customers are beginning to realize that efficiency improvements in their plants mean improvements in the overall electrical profile of the utility. Working together as partners, all parties win.