

Saint-Gobain Shows the Way on Effectively Preparing for Energy Savings Assessments

Saint-Gobain, a world leader in high-performance materials and glass manufacturing, uses its rich history in energy efficiency and experiences with DOE's *Save Energy Now* initiative to develop a generic approach for any plant to effectively prepare for a Energy Savings Assessment.

Saint-Gobain, a leading global supplier of building materials with headquarters in Paris, has paved its expansion and progress by developing solutions that prioritize energy performance and environmental protection. Keeping these criteria in focus, six of Saint-Gobain's U.S. plants have participated in Energy Savings Assessments (ESAs) offered by the U.S. Department of Energy's Industrial Technologies Program (ITP). While the company is reaping significant benefits in energy savings as well as emissions reductions at these plants, Saint-Gobain has joined hands with ITP's *Save Energy Now* initiative to assist other companies with their ESAs so they are productive. Saint-Gobain has developed a generic approach to guide companies on preparing their plants for ESAs in a manner that can maximize their value and ensure implementation of recommendations.



The Company

Established in 1665, Saint-Gobain is currently a world leader in the manufacture of construction materials and glass products. Headquartered in Paris, with operations in 64 countries, the company is made up of about 190,000 employees and boasts 84 different nationalities. In 2009, the company reported international sales of \$53 billion with 46 percent of those sales generated from renovation, 31 percent from new construction, and the remaining 23 percent from other markets including automotive and residential.^{1,2}

Saint-Gobain's Energy Efficiency Efforts

Saint-Gobain has acquired world leadership in the habitation market and maintains this position by offering innovative solutions that meet the fundamental global challenges of growth, energy and the environment.” Saint-Gobain demonstrates this corporate philosophy of energy efficiency throughout the company—from the construction of energy efficient buildings to making the plants that produce materials for those buildings consume energy more effectively, while reducing related carbon dioxide emissions. Saint-Gobain even implemented a program to train contractors on energy efficient construction and how they can apply those techniques when they are building new residential facilities.

As the front runner in the world's habitation markets, Saint-Gobain has set itself the goal of providing innovative solutions to the upcoming challenges of environmental protection and energy saving.

- Pierre-André deChalendar,
Saint Gobain CEO

Partnering with *Save Energy Now*

ITP's *Save Energy Now* program is a national initiative to drive a reduction in industrial energy consumption, which will enhance U.S. industrial manufacturing competitiveness. Since its inception in 2006, *Save Energy Now* has completed more than 2,400 plant energy assessments to identify energy efficiency measures and realize cost savings. Over 2,200 plants have participated in ITP-sponsored ESAs, which have identified more than \$1.3 billion in potential cost savings per year. In addition to assessments, *Save Energy Now* provides software tools, information, training, technical assistance, and other resources that are helping plants to identify opportunities for energy savings and develop a “green” workforce with expertise in energy management.

With energy efficiency as a priority in its operations, Saint-Gobain received ESA's at six of its U.S. plants from May 2006 to September 2009. Many of those facilities were formally recognized as Energy Saver and Energy Champion plants by ITP for making significant progress in implementing the identified energy-savings opportunities. Energy Champion award winners are plants that have achieved 15 percent total energy savings and Energy Saver award winners are plants that have achieved 7.5 percent total energy savings. Additionally, Saint-Gobain was named the U.S. Environmental Protection Agency's ENERGY STAR Partner of the Year in both 2009 and 2010. The company received the honor in 2010 because it reduced its North American energy consumption 2.2 percent and lowered its carbon dioxide emissions by more than 70,000 metric tons.³

Assisting Other Companies with Successful ESAs

In keeping with the LEADER Pledge, Saint-Gobain has stepped forward to assist other U.S. facilities with their ESAs by developing an approach that can be broadly applied to other companies regardless of industry type. This approach assists companies in

preparing for and participating in energy assessments; and was designed to ensure that the recommendations identified during the assessments are implemented. The approach was unveiled during the January 2010 *Save Energy Now* LEADER Webinar delivered by Saint-Gobain's Energy Manager Brad Runda. During the Webcast, Runda discussed key tips that will help other companies achieve the same success Saint-Gobain has seen with energy efficiency project implementation. The DOE strategy lays out five main steps that will help companies realize efficient assessments and implementation – Plan, Prepare, Corporate Buy-In, Capital Budgets, and Staff. Saint-Gobain's suggestions cover the Prepare part of the overall strategy.

Preparing for ESAs

Saint-Gobain strategy emphasizes the *Prepare* phase as key to a successful ESA, and thus, for a successful implementation process to follow on. This phase categorizes the items that should take place prior to an assessment:

- Safety
- Internal approval
- Confidentiality agreement
- Physical space & personnel assistance
- Fuel consumption
- Metering
- Equipment & processes

Safety

Safety, being an important aspect of plant operations, should be a primary focus for any industrial plant. Therefore, it is no surprise that it should be a factor in preparing for an assessment. It is recommended that special thought be given to outsiders that will be coming to the plant because they may be required to travel through areas that not everyone in the plant is familiar with or specifically trained to be in. Additional safety equipment should be planned out, as well as special training sessions for unique sites must be considered. Safety should be the first topic of discussion when anyone new will be arriving at a facility.



Internal Approval

It is important to obtain the necessary support before conducting an assessment. This will be essential when it comes to allocating the necessary resources to accommodate the visiting team who will be performing the assessment. Additionally, senior-level staff will play a key role when setting priorities after the assessment is complete and when corporate buy-in is needed. It is valuable to note that individual expectation levels can greatly influence the ultimate outcome of the assessment, which is project implementation. Therefore, recommendations from the assessments should comply with internal guidelines for project returns. Investing money on an assessment that turns out to have little payback will not help the energy efficiency initiative.

Confidentiality Agreement

While *Save Energy Now* has a confidentiality agreement, it is important to highlight this with anyone accessing the plant as a reminder. Energy auditors may come into contact with sensitive equipment, processes, or trade secrets. Remember to provide up-front notice regarding pictures or video requirements that may be used during the assessment.

Physical Space & Personnel Assistance

Assessments can last anywhere from one day to three days or longer, depending on the plant size and availability. Thus, it is important to have a secure location for people to perform their work, discuss

Q: What is the most expensive utility that is often overlooked as 'free'?

A: Compressed Air

Performing an energy assessment is a wonderful idea, but it only provides the potential energy savings; therefore, the main objective should always be the implementation of those findings.

- Brad Runda | PE Manager, Energy

topics, and retreat to when not on the plant floor. This location (or locations) should include a computer, phone, network access, as well as table space. Also, because auditors are foreign to the facility, it is suggested that plant personnel be retained to assist them. These people should be knowledgeable of the plant and specifically the area where the assessment is taking place. They should also be accessible throughout the site visit. Personnel that are knowledgeable of the process can speed things up significantly.

Fuel Consumption

Understanding how you pay for energy is important to the overall outcome of an assessment. Without this knowledge, it is impossible to focus an assessment on the biggest energy opportunities in the facility. If site personnel are not knowledgeable on how the plant's energy is purchased, a utility representative may be contacted. These representatives will often come out to the facility, sit down and go over previous energy bills, and explain to management how the plant uses energy. It is highly recommended that facilities communicate with their utility representative prior to an assessment as it can help provide ideas

for the assessment to focus on. According to Mr. Runda, "There's a big difference between high demand charge and high energy charge."⁴ Knowing which type of charge a plant falls victim to more often will greatly impact future savings potential.

Metering

Past energy bills will provide information on how much and what type of energy is consumed by the plant, but a plant load profile will provide details on how that energy is used throughout the plant. Assessments breakdown how a plant works into smaller segments, which makes the process of identifying energy savings easier to isolate. Each of these segments contains a sub-meter location. The sub-meter location is simply where measurements or readings are taken. Many newer facilities already have sub-metering locations in place, but older plants often do not. It is important to prepare new or existing locations for the assessment team. It is suggested that plant personnel perform a walkthrough of existing sub-meter locations to make sure they are functional, clear of debris, and still accessible. Communicate with the assessor prior to adding new sub-metering sites within the plant to

make sure the addition is relevant to the assessment. Collecting reliable data during the assessment will be a huge factor in the success of the assessment process.

Equipment & Processes

Assessments often focus on equipment. When purchased, this equipment frequently comes with original equipment manufacturer (OEM) documentation, such as performance tests, technical information, and operation guidelines. This information is critical because it provides the baseline performance characteristics for that piece of equipment. Comparing how a pump currently operates to how a pump should perform provides for the best way to calculate possible energy savings. Also, it is not always possible or feasible to analyze each individual piece of equipment. In these cases, it is better to review the process that the plant utilizes. In this occurrence, it is necessary to have process diagrams that the assessment team can refer to when performing the assessment. It is recommended that personnel have both sets of information available at the time of the assessment in order to reduce any loss of time that searching for the material may cause.



Conclusion

Developed based on its successful experiences with ESAs, Saint-Gobain's suggestions can help plants of any type prepare effectively for ESAs. Focusing on the Prepare phase will help relieve some of the anxiety that plant managers and energy managers deal with when it is time for an assessment, as well as paying close attention to all items under this phase can help plants to ensure a successful and productive ESA. A successful assessment will not only be a huge advantage to the facility, but will also allow the company to replicate the success across its other facilities and bring in more energy savings.

While Saint-Gobain is assisting other companies to achieve success in their energy reduction goals, this international company is set for major energy savings of its own. Through the Save *Energy Now* initiative, Saint-Gobain is now equipped with the necessary skills and management experience to administer its energy-intensity-reduction goals at its other facilities throughout the world.

Endnotes

¹ Saint-Gobain. "Saint-Gobain at a Glance." <http://www.saint-gobain.com/en/press/saint-gobain-glance>. Accessed April 29, 2010.

² Saint-Gobain. "Saint-Gobain Our Employee." , <http://www.saint-gobain.com/en/group/our-employees>. Accessed May 17, 2010.

³ ENERGYSTAR. "Saint-Gobain: ENERGY STAR Partner of the Year." http://www.energystar.gov/index.cfm?fuseaction=pt_awards.showAwardDetails&esa_id=3656. Accessed April 29, 2010.

⁴ Phone conversation with Brad Runda on April 23, 2010.

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