

# SIMPLE, ADD-ON TECHNOLOGIES

## Increase Energy Efficiency

STORY BY RICH BAILEY

**A**S ENERGY COSTS INCREASE, ENERGY EFFICIENCY LOOKS MORE AND MORE LIKE A SMART INVESTMENT. THE CONSULTING FIRM APPLIED ENERGY CONSERVATION SYSTEMS (AECS) HAS HELPED THE SPORTS BARN REDUCE ITS MONTHLY POWER BILLS BY MORE THAN 11% AND IMPROVE THE QUALITY OF ITS LIGHTING IN ITS THREE FITNESS CENTERS IN CHATTANOOGA.

“Our power bill has gone down every month since we did this. We improved our members’ experience, did something for the environment and saved some money, all in one fell swoop. I wish we could do that every month,” says David Brock, managing partner for the Sports Barn.

A little more than a year ago, AECS installed passive technology add-ons to existing equipment to improve electrical efficiencies and enhance power quality. Now the savings on monthly power bills is actually higher than predicted. “We are tracking 11.16% savings for the Sports Barn. We had originally projected 10.37% savings,” says Steve O’Neil, president of Chattanooga-based AECS.

### How AECS Solutions Work

“We are really focused on the economics of

conservation. Our savings are generally found in four areas: motor loads, lighting, refrigeration and air conditioning. We treat the equipment that is already in place, without interrupting business operations,” says O’Neil.

AECS works primarily with industrial and commercial companies. Based on an analysis of a company’s electric bills, electrical distribution system, and equipment on-site that uses electricity, AECS designs a system of passive technology add-ons that increase the efficiency of existing equipment. Typical savings in various categories are: equipment motors, 2-18%; air conditioning, 12-30%; refrigeration, 15-40%; and lighting, 20-50%. Total reduction in electric bills is 10-20%, with return on investment for the new technology of 20-33%, meaning that the investment will pay for itself in three to five years, according to O’Neil.



DAVID BROCK, MANAGING PARTNER FOR THE SPORTS BARN, SAYS THE TECHNOLOGY HAS SAVED THE COMPANY OVER \$2,000 A MONTH. WITH HIM, RIGHT, IS AECS FOUNDER, STEVE O’NEIL.

AECS uses technologies and techniques developed by Energy Automation Systems, Inc. (EASI), headquartered in Hendersonville, Tennessee. Over the last 28 years, EASI’s technologies have been implemented across the country in major companies, including Coca-Cola, General Electric, Ford, Samsung, General Mills, Shell Oil, Carrier, and many more.

### AECS Technology at Sports Barn

The Sports Barn’s project with AECS began with a concern about poor quality lighting in its East Brainerd location. Rather than simply replacing lighting systems, Brock ultimately decided that his company could both solve their lighting issues and save money at all three Sports Barn locations by working with AECS.

“It really was an easy decision for us to invest \$80,000 and have that pay back over three years through reduced energy costs, and then we get the benefit of those savings forever and they guarantee the savings,” says Brock. “After we did it we had an immediate positive reaction from our members. The difference was most dramatic at the East Brainerd club.”

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AECS converted fluorescent lighting to more efficient T8 bulbs and switched ballasts from magnetic to electronic. Optimizers were added to Sports Barn's air conditioning systems, reducing electric demand—and higher demand charges—by modifying the compressor cycle. Oil lubricant was added to refrigerant lines to help motors run better. AECS also added “reactive power correction” to make motors that run Jacuzzis, pool filters and the heating and air conditioning systems run more efficiently.

Results at Sports Barn surpassed AECS's original projections. In the first 12 months, electric bills were reduced by approximately \$2,640 per month or \$31,670 annually. That amount exceeds AECS's original estimate by approximately \$7,850, partly because the cost of electricity increased in 2009, resulting in greater cost savings from the increase in efficiency.

Sports Barn's annual savings are equivalent to: 183 barrels of oil, or 139 tons of coal, or 3,713 pounds of sulphur dioxide, or the carbon dioxide emitted by 41 cars.

## Increasing Energy Prices Mean Higher Return on Efficiency

“As energy prices go up, Sports Barn's savings will continue to climb, and their return on investment will accelerate,” says O'Neil. He originally predicted

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For example, if a client has 600 inefficient lights, we are probably not going to replace all of them, only the ones where the payback is within three to five years. If a light is seldom on—maybe because it's in a storage area or a place that receives lots of natural light—it would increase efficiency to replace it, but the payback would not be worth the cost.”

—Steve O'Neil

that savings would pay off the cost of the equipment in 40 months. Now the payback period has decreased to 30 months because of the increasing cost per kilowatt hour.

“As long as energy costs keep rising, these types of projects are going to become more attractive,” says O'Neil. “The federal government has gotten very aggressive with tax incentives for energy efficiency and conservation. A company that spends less than \$800,000 on qualified equipment can write off up to \$250,000.”

“We see conservation as a numbers

game,” he continues. “We have gotten very good at identifying the low-hanging fruit, the areas where clients can get the quickest payback. We leave some savings on the table simply because we think it would take too long to pay for them. For example, if a client has 600 inefficient lights, we are probably not going to replace all of them, only the ones where the payback is within three to five years. If a light is seldom on—maybe because it's in a storage area or a place that receives lots of natural light—it would increase efficiency to replace it, but the payback would not be worth the cost.”



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