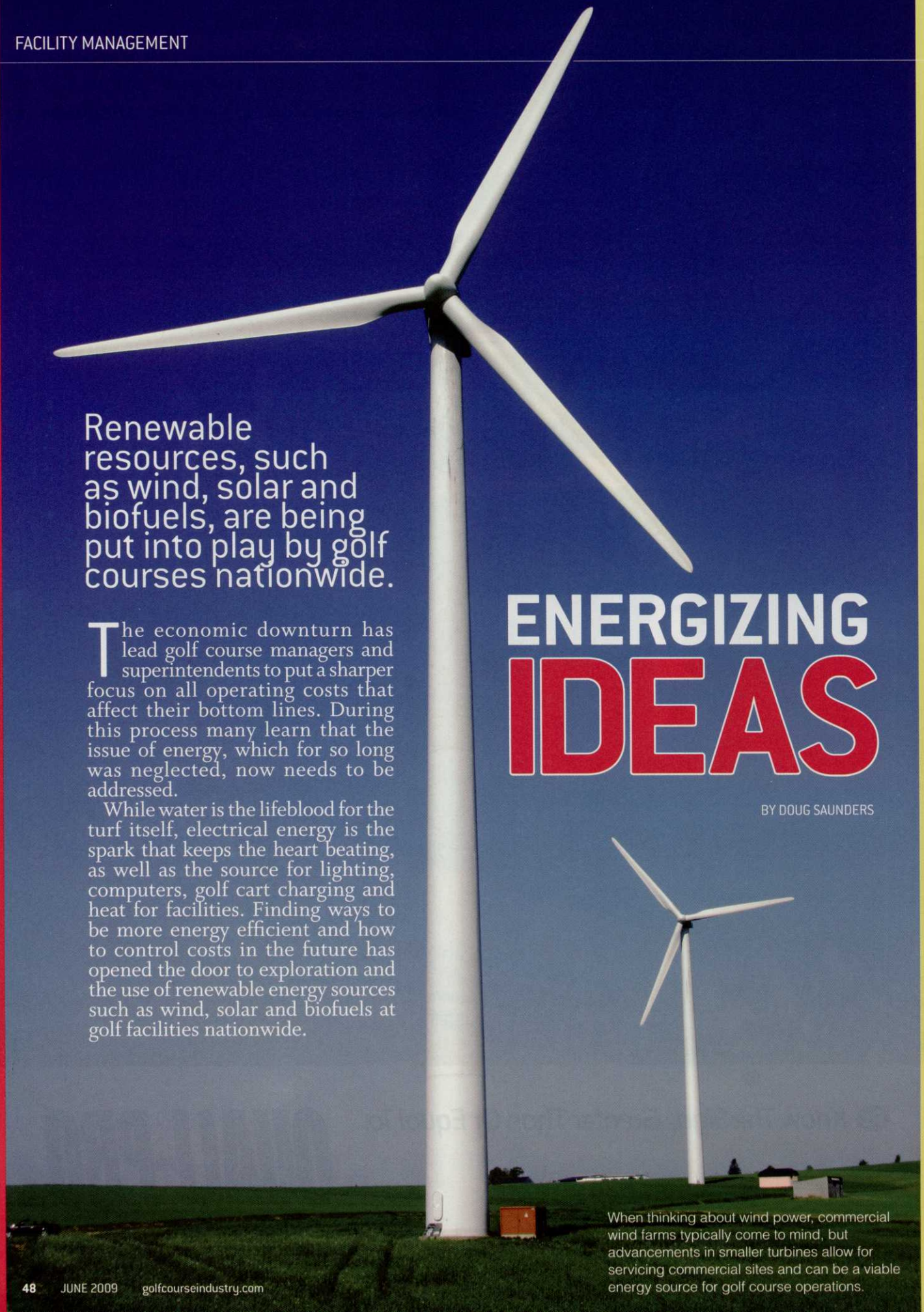

Renewable resources, such as wind, solar and biofuels, are being put into play by golf courses nationwide.

ENERGIZING IDEAS

BY DOUG SAUNDERS

The economic downturn has lead golf course managers and superintendents to put a sharper focus on all operating costs that affect their bottom lines. During this process many learn that the issue of energy, which for so long was neglected, now needs to be addressed.

While water is the lifeblood for the turf itself, electrical energy is the spark that keeps the heart beating, as well as the source for lighting, computers, golf cart charging and heat for facilities. Finding ways to be more energy efficient and how to control costs in the future has opened the door to exploration and the use of renewable energy sources such as wind, solar and biofuels at golf facilities nationwide.

When thinking about wind power, commercial wind farms typically come to mind, but advancements in smaller turbines allow for servicing commercial sites and can be a viable energy source for golf course operations.

Wee Burn Golf Club's maintenance building roof is the site of an 86 kilowatt solar system. It will produce 92,000 kwh annually, or about 20 percent of the facility's power needs.

Learning about renewable energy systems

Taking the first step to understand how renewables can be a part of a green movement at your facility can be a daunting task. It's essential to gather information about electrical use throughout your facility. This data should be broken down so that you know how much power is used for the clubhouse, exterior lighting, the maintenance facility, pumps and cart-charging if applicable. Contact your power provider and ask about energy audits. Many utilities will have a list of area contractors who specialize in energy auditing.

Searching the Internet for information about solar, wind and biofuels can be an overwhelming task, but it can be simplified by visiting the Solar Electrical Institute of America's Web site, www.seia.org, which not only gives excellent information about solar power but the link to the DSIRE page which compiles a complete list of the various incentive programs that are available in each state.

Another good resource is the American Wind Energy Association (www.awea.org), which provides information on wind generation, detailed wind maps and information on incentive programs.

If your facility believes it has a good potential site, contact a reputable renewable energy company that has been around for several years. The increased interest in green technologies can create a good opportunity for golf courses to highlight their ongoing commitment to the environment while investing in a long-term solution to increasing energy costs.

Public concern about energy independence, climate change and increasing energy demands has driven green initiatives into the forefront of focus for federal, state and local governments. Finding ways to offset rising costs while making a green statement has led some golf courses to incorporate renewable energy into their operations.

HERE COMES THE SUN

On an early spring morning at the Island Golf Course in Plaquemine, La., general manager Glen Clouatre sits in his office making the daily checks on his operation. One of the first items he tends to is monitoring the output of the 3,000 square feet of solar panels that grace the south-facing roof of the cart barn. As the morning sun hits the system, he's encouraged to see that it's pumping out kilowatts to offset his energy costs, just as it has nearly every day since the system was installed last October.

"Last spring we looked at all of our energy usage and felt that, picking at the low-hanging fruit of these costs, we should research incorporating a solar array," Clouatre says. "We brought in a regional solar supplier to help us out in determining the feasibility as well as determining the cost of a system."

Island Golf Course's 32-kilowatt system consists of 160 solar panels mounted on the cart barn roof. It can produce 4,800 kilowatt-hours a month – enough power to offset electrical use by about 30 percent. More importantly, the supplemental power source has helped Clouatre avoid excess demand charges from the utility company.

"We pay 12 cents per kilowatt for electricity, but there's an over-use charge of $5.10 per kilowatt for extra power use," he says. "Last year we were charged that rate for 1,872 kilowatts – almost $10,000 – so finding some way to lessen that bill was important."

While the offset in energy costs are helpful, alone they make a $220,000 investment hard to justify. But the recent changes in various state and federal tax incentives dramatically have changed the economic dynamics of renewable energy sources. The federal tax rebate is now 30 percent of the investment and the various state programs in Louisiana have helped the Island Golf Course offset $110,000 of the investment.

The energy generated from the system is tied back into the utility grid. As the system generates power it's allowing the meter to run backwards, creating a net metering compensation. Through these various programs the Island Golf Course hopes to recoup its investment within six years.

These incentive programs are directly related to the other part of the energy equation that has to be considered. Electrical suppliers will have a difficult time adding more generation sources in the near future and are taking a more proactive look at renewable sources themselves. Many states and utility companies have set ambitious goals to generate a percentage of their power through renewable sources within the next few years. This shift has led to a variety of new ways to finance or lease renewable energy equipment as utilities try to meet these goals. Golf facilities can be an attractive site because of their location and acreage and they can be a visible example for their surrounding community.

Wee Burn Golf Club in Darien, Conn., recently completed the installation of an 86 kilowatt solar system consisting of 380 panels installed on the roof of its maintenance building. The system will produce 92,000 kwh annually – about 20 percent its power

needs – and was installed basically at no cost through a lease agreement developed by the solar outfitter, Mercury Solar Systems in New Rochelle, N.Y., who created a Power Provider Agreement (PPA) with the local utility company.

As a private club, Wee Burn didn't qualify for the tax credits, says Mercury Solar Systems President Jared Haines. "So having our company create the PPA was the only way to make the system pencil out," he says, noting a daily-fee course could buy the system and take advantage of the incentives.

"Our membership was interested in making a statement about our commitment to the environment and our carbon footprint by adding solar to our facility," says Warren Burdock general manager at Wee Burn Golf Club. "The solar company installed the system, took the tax incentives, developed a PPA agreement and worked out an arrangement for the carbon offsets. For us, our energy costs are 12 percent less for the power generated by the solar grid."

Visit golfcourseindustry.com's Online Extra section to see a video about the Island Golf Course's solar panel system.

BLOWIN' IN THE WIND

While harnessing the sun's energy has been a focal point of renewable technologies for several decades, attempts to harness the boundless power of the wind have seen vast improvements in technology in recent years. When talking about wind power, one first thinks of the 80-foot-long prop blades associated with the commercial wind farms around the country, but there has been significant development in smaller turbines that can service home sites, commercial buildings in metropolitan settings and can be a viable energy source for golf course operations. While the viability of wind generation is more site-specific as a steady wind source is needed, the cost of wind generation can be lower than a solar array and can be used in rather creative ways.

Consider the windmill system at the Interbay Golf Center in Seattle. Superintendent Rocky Tharp maintains this learning center and nine-hole golf facility, which has a small retention pond where algae suppression is an ongoing challenge. Last summer Tharp installed a small windmill by the pond that powers a compressor, which pumps air into the pond to control the algae bloom. His $1,500 system eliminated the need to run power out to the pond and helped him eliminate the use of standard copper sulfate previously used for algae control.

"I set up this system last fall and so far it has worked very well," Tharp says. "The other payback is that the public is encouraged by the proactive approach that we have taken at this city-operated facility."

At Rochester Golf Club in Milton, Mass., superintendent Stuart Tallman has operated a small windmill on site for three years. His windmill was set up through a grant from the Massachusetts Technological Collaboration (MTC), a state agency looking for ways to introduce renewable energy sources.

"Our windmill is a 10 kilowatt Burgey windmill, but I've found that our 50-foot tower isn't high enough to get it above the trees and into a more consistent wind stream," Tallman says. "We're generating a little over half the power originally projected, so our payback is projected for 10 years now. Still the system has helped to cut $3,500 a year from my electrical bill. The system is tied into the grid creating a net metering arrangement that makes the meter run backwards when it's generating power. During the winter months when the course is closed, it's generating power and building up a reserve."

Robert Luff is the owner of the Sagamore Hampton Golf Course in Seaport, N.H., which is located just a few miles inland from the Atlantic Ocean and sits on a hillside.

He began to research alternative power sources 10 years ago and found little support from both the utility company or the governing bodies.

"Things have changed dramatically since I began to research the idea," Luff says. "Today I can get a net metering agreement from the power provider and there are more incentives to help make the systems affordable. In my case I found that I could put up two Sky Stream windmills and generate 3.8 kilowatts per year, about 30 to 35 percent of my power needs for less than a solar array would cost because I had a good wind source here. I was able to work with the city for variances for the 50-foot tall towers and the state incentives make the whole project feasible."

A good example of how community green initiatives will be a continuing driving force can be found in Reno, Nev. In March the city council voted to install various solar and wind generation systems around the city to offset its utility costs. At the city-operated Rosewood Lakes Golf Course, three windmills will be erected.

"I had mentioned to the city that I thought looking at alternatives made sense and I am glad that they are moving forward with the idea," says golf professional Bob Force.

"It just makes sense for golf as an industry to embrace any way to be better environmental stewards," he says. "The payback from these types of programs in terms of showing our concern for the future can't be overlooked."

The project in Reno will highlight two windmill companies based in the city – Mariah Wind and Synergy Corp. One windmill will be set up next to the maintenance building while one will be installed out near one of the pump houses on the golf course. These two sites were chosen to make an easier grid connection to develop a net metering arrangement with the utility company. The city hopes to have the windmills in operation by the fall. **GCI**

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