Working on Sunshine:

How Solar Power Saves Money, Adds Value, and Reduces Impact on the Environment

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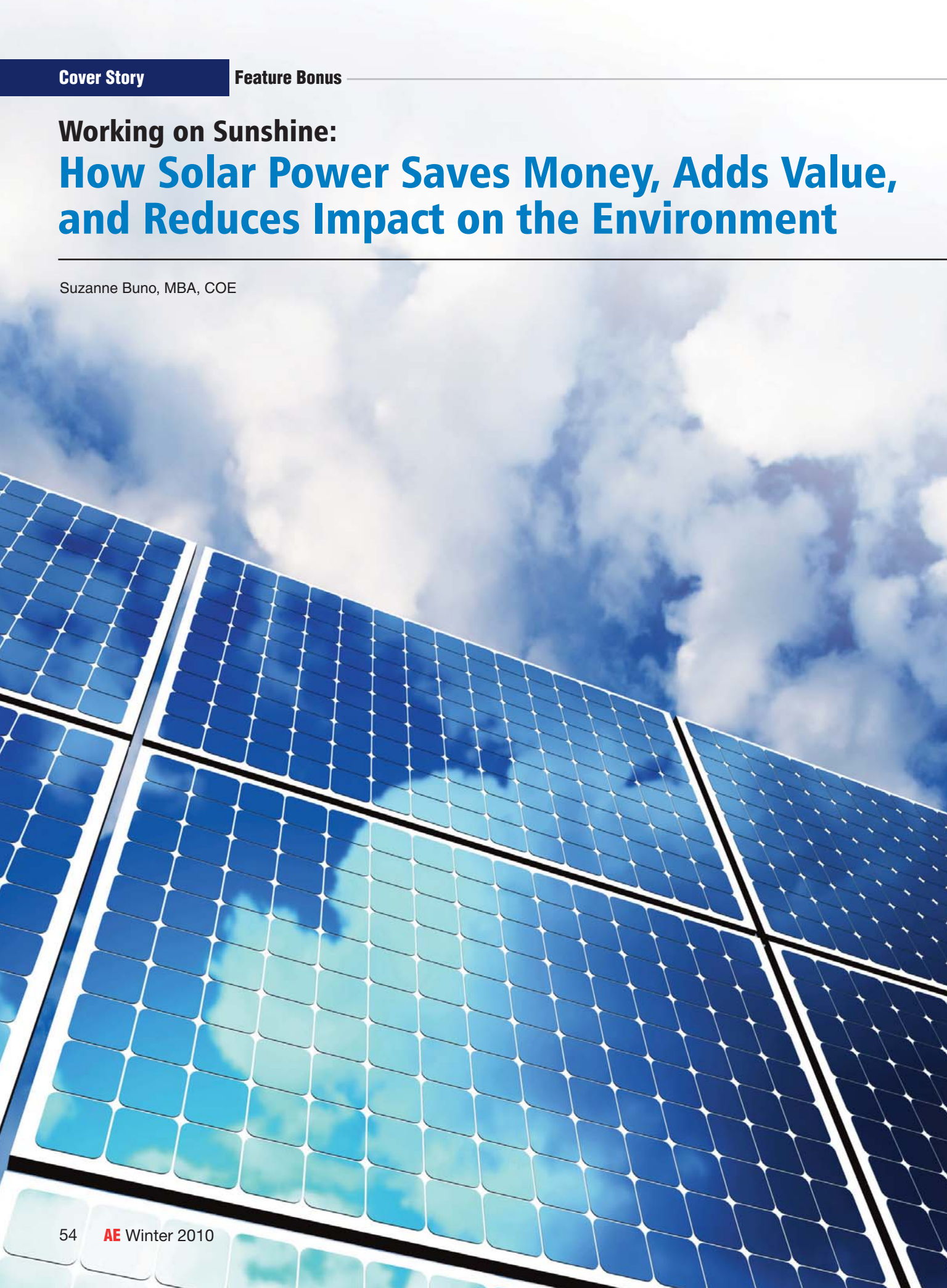

While naysayers would argue the opposite, it is totally possible for solar energy technology to reduce energy costs, have a less negative impact on the environment, and have the process at the very least pay for itself.

In the summer of 2008, gas prices soared to $4.00/gallon and utilities warned of passing skyrocketing costs onto consumers. Substantial federal and state incentives were offered for installation of renewable energy sources, and mandates were issued to utility companies requiring them, under threat of significant financial penalty, to increase the amount of energy they produce from renewable sources. The looming recession heightened the pressure to find ways to save energy. The energy needed to run an ophthalmology practice is significant, and it seemed like it was time for our practice to take a hard look at the possible savings (if any) from self-generating electricity.

Our geographic climate and environment pointed to the use of solar energy. Windmills were not feasible in the amount of space available, and our geographic area is not characterized as a windy region of the country except sometimes during hurricane season. Although our location in the middle Atlantic states is not considered optimal for solar energy collection (compared to sunnier climates, for example), we do enjoy a decent amount of sun. Owning a southern-facing, flat-roofed building in an area without many tall trees also seemed advantageous, and a commitment to preserving the environment through strong policies on recycling and reducing waste had been pervasive in the practice for many years.

Finding an experienced and knowledgeable group of contractors to offer proposals was a challenge in this infant industry. Many contractors were new to the technology or had only installed solar in the residential arena, so due diligence was essential. We learned a lot from speaking with references and after a few false starts we also learned, through analyzing our electricity consumption for the previous two years, that we consumed roughly 30,000 kilowatt hours annually and had enough room on the roof to put about 100 solar panels capable of generating up to 22,000 kilowatt hours annually.

Questions then arose about the strength and integrity of the roof. While solar panels are not extremely heavy, the grid framework that holds them adds weight to the roof load. Drilling holes through the roofing membrane to accept the mounting brackets for the grid can compromise the integrity of the roof and cause leaks. Though grid frames that do not penetrate the roof are available, the cost associated with this type of support system was significantly higher than the bolted-down grid, and concerns developed about the stability of the non-bolted grid during hurricane season. State regulations for our locale require solar panels be able to endure winds of up to 175 miles per hour without moving.

While the structural and technical details were addressed, we were also costing out the project. Generally, we look for a positive return on investment within a three- to five-year period on any capital expenditure, depending on tax factors and depreciation rules. The federal government was offering substantial tax credits for businesses that invested in renewable energy, as was our state government.

Additionally, our state was allowing public utilities to "buy back" credit for production of renewable energy from private generators. In New Jersey, public utility companies are required by law to produce a certain amount of energy from renewable energy sources. Since most of the utility companies are unable to meet this requirement on their own, they may go to private generators and purchase credit for production of this renewable energy. Each renewable energy credit has a dollar value and is sold in a clearinghouse through a competitive bidding process in a manner similar to that of eBay auctions.

When all the financial factors were analyzed, the end result pointed to solar energy becoming profitable to the business by the end of year 10, when the loans would be satisfied. During the term of the loan, the reduction in cost netted from production of our own power and the sale of the renewable energy credits would most likely cover the costs of the project as long as sun exposure was consistent with historical levels. With the solar power panels guaranteed for 25 years of operation, years 11 through 25 would net substantial cost savings to the business and reduce the carbon footprint for this source of power consumption by nearly 60%.

Installation was completed just before winter began. As luck would have it, the spring and summer of 2009 were dismal and rainy without much sunshine. In June alone there were 25 days of rain. So while the system has the capacity to produce 22,000 kilowatts of power in 12 months of operation, the actual production will be closer to 15,000 kilowatt hours. The combined revenue for these 15,000 kWh from utility savings and sales of renewable energy credits will be about 70% of projections. If this trend continues it will extend the break-even point into year 13. Is it worth it?

In the last year the cost of solar panels (about 50% of the total project cost) has plummeted. Whether solar power adds value to the property at the time of resale is still unknown, but the financial feasibility of working on sunshine is out there today. Post-installation management is minimal and the system so far has been completely maintenance free. Personal and political perspectives about reducing dependence on oil and damaging the earth aside, solar energy is a sound financial project that makes sense. AE

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