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Students: Join in solar effort

By **Amar Gupta**
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Amar Gupta
 guest columnist

"We (humans) are now putting seven times as much carbon dioxide into the atmosphere as we were in the early 1950s!" This was the shocking revelation that Karl Hodges made at a recent meeting at the Eller College of Management. He is a retired professor of agriculture and life sciences from this university and is intimately familiar with issues of carbon emissions in the global atmosphere.

Today, one enjoys the luxury of stepping outside a smoke-filled bar to catch a breath of fresh air outside. Picture the day when we can no longer breathe the atmospheric air. Just as we use bottled water today to mitigate the problem of polluted water, the need to wear air masks in some crowded cities today serves as a harbinger of an era when one may need to buy bottled air too!

The production of electricity using either coal or oil results in significant toxic emissions. The growing incidence of carbon dioxide is making unprecedented changes in our atmosphere, and a growing number of scientists are concerned with the long-term ramifications of such changes.

Much prior to Hurricanes Katrina and Rita, respected scientists had argued that one impact of the changing atmospheric conditions would be in terms of global warming, characterized by more fierce and more frequent storms and hurricanes. NASA recently released its finding that the summer was the warmest one in 400 years.

Yes, the use of photovoltaic cells involves significant upfront costs. But the recurring costs are miniscule as compared to traditional techniques as we do not need to buy any coal or oil. Therefore, if one takes the cost of generation of electricity over a long period, photovoltaic cells actually lead to lower costs than traditional techniques; this is in terms of average cost per unit of electricity produced over the lifetime of the endeavor.

When George W. Bush became president in 2000, we paid slightly more than \$1 per gallon at the gas pump. Immediately after Hurricane Katrina, we were paying more than \$3 a gallon in Tucson. On one side, we have rapidly escalating costs of oil, the negative effect of growing carbon dioxide levels in the atmosphere for us and our future generations to deal with, and the increasing potential for hurricanes; and on the other, we have solar power with falling costs and none of these major negative side effects.

If I were asked to invest \$1,000 today with the stipulation that I (actually, my successors) can withdraw the accumulated amount at the end of 100 years only, I

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would promptly decide in favor of renewable energy sources. And I hope you would too.

Renewable sources account for 45 percent of all energy in Norway today, but a paltry 4.2 percent in the U.S. Universities in other countries are playing a significant role in this arena.

One initiative at the University of New South Wales in Australia is the creation of a 42-kilowatt (peak power) grid-connected photovoltaic system; this project was paid entirely from savings accrued from earlier energy-saving endeavors.

The new initiative alone would provide enough energy to run the equivalent of 300 computers on campus every day, and save more than 80,000 kilograms of greenhouse gas emissions each year.

Within Arizona, the state government has been proactive by passing legislation that grants some degree of immunity when deploying solar panels. And for our campus itself, Tucson Electric Power is willing to donate solar-powered material capable of generating three kilowatts of electricity, if the installation is completed during the current academic year.

A campuswide campaign is currently in progress to mobilize additional funds from local businesses. These funds are needed to acquire photovoltaic cells capable of generating seven additional kilowatts of energy, plus to cover the installation costs. The total of 10 kilowatts would be adequate to power one building, thereby serving as a showcase for further renewable energy projects.

The students can and should play a pivotal role by becoming an integral part of this effort, such as by motivating local businesses to invest in this endeavor. As an undergraduate, my class provided involuntary labor to dig the ground to establish a swimming pool at my alma mater. None of us got to swim at that pool then.

But when I meet recent alumni from that university, I derive great satisfaction on hearing of their experiences at that swimming pool. I am confident that you too, as future alumni, will derive such pleasure in future years when you can proudly claim that you were the original initiators and sponsors of the first renewable energy-based electric generators on this campus.

Amar Gupta is the Thomas Brown chairman in management and technology at the Eller College of Management.

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