

Schools see the importance of a greener vision

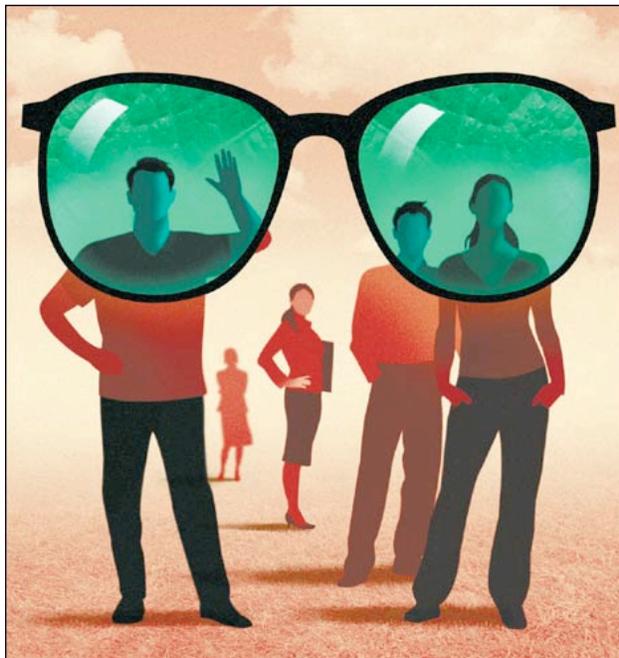
By Sheila McNulty

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When GCube, the insurance services provider, had to cover a claim to replace wind energy equipment last year, it found a way to put the damaged parts to use. GCube donated the turbine to Laramie County Community College in Wyoming. The used but working equipment was valued at \$600,000 but the donation was part of a long-term company initiative to give engineering students hands-on experience of wind energy technology.

The college, could not have afforded to buy the kit itself. Just bringing the 36-tonne unit

to campus, installing it and building a catwalk around it so that students could learn how to maintain it, has cost the college more than \$100,000 (€68,000, £62,000).



As schools across the US start to build renewable energy programmes, hands-on experience is increasingly sought after. The Obama administration has pledged to pour funds into renewables, with an economic stimulus package that includes \$56bn in grants and tax breaks for US clean energy projects over the next 10 years and a budget of \$15bn a year to fund renewable energy programmes such as biodiesel, ethanol, solar and wind energy, as well as hybrid vehicles.

In response, schools across the US are looking at ways to prepare students for the industry. Universities and business schools are broadening traditional curriculums to take in issues that arise from the world's attempts to move away from fossil fuels and embrace alternative sources.

Pennsylvania State University does so through courses in its environmental and renewable resource economics department. Stanford University's global climate and

energy project works to find solutions to how to supply energy to meet the needs of a growing world population while protecting the environment.

At the Bauer College of Business at the University of Houston , Praveen Kumar, executive director of the Global Energy Management Institute, last year started trying to capitalise on Houston's standing as the world's energy capital with an increasing number of workshops, seminars and courses touching on renewables.

Given all the energy talent in the city, the school is able to pull in speakers and guest lecturers from across the industry. UH is using a partnership with the National Renewable Energy Laboratory to research the commercial viability of pyroil, a biomass-based fuel, to develop a course on the economic aspects of biofuels. It held the country's first graduate course in carbon trading, in co-ordination with the university's law school, given all the legal issues still to be resolved.

Earlier this year, the school offered a course dedicated to working with companies to design renewables-based business plans for its applied finance projects class. "It's been a great experience for all of us," Prof Kumar says. "We will do it every summer."

Next year, UH will move such occasional courses on to the core curriculum, with three or four regularly scheduled courses touching on renewables and carbon markets.

While the US has been moving toward renewables for several years, he explains there is a time lag in higher education. "You want to make sure you have a framework you can give to the students."

John Butler, academic director in the Energy Management and Innovation Center in the McCombs School of Business at the University of Texas at Austin, says: "To get a new course offered is very hard." For that reason, the university offers practicums as a way to get around the formality of creating a new course. These project-based courses change topics from year to year and are a good way to get into alternatives.

In addition, the university uses alternative energy companies or issues as examples or case studies in a variety of classes. For example, students in the school's marketing class will be focusing on companies marketing green products.

"It's going to be hard to talk about running a business without talking about energy in general and sustainability specifically," Prof Butler adds.

The school offers its MBA students electives in Clean Technology and Energy Finance that incorporate renewables. He expects that at some point, the school will offer a class focused entirely on alternatives.

For the past three years, Kyriacos Zygourakis, professor of chemical and biomolecular engineering at Rice University , has co-taught a course called engineering sustainable communities.

It examines the US's dependence on fossil fuels, whose production will eventually peak, and the effort that is required to scale up renewables to replace them. "Students learn how to systematically analyse these issues," says Prof Zygourakis.

This year's final project was to see how Rice University could meet its goal to become carbon neutral. "No single solution can provide the answer," he says. He admits some students are shocked at discovering how hard meeting that goal will be.

"My goal is to make the students understand the complexity of these problems," adds Prof Zygourakis. "Hopefully they can contribute to the solution."

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