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ENERGY FIELDS

Universities have been providing courses on environmental issues for many years but the emphasis is now much broader. By **Megan Dixon-Child.**

CLIMATE CHANGE, GLOBAL warming and carbon-trading schemes are the new barbecue stoppers but at Australian universities these issues are not news.

Long before such environmental concerns hit the front pages, universities were structuring their courses across a range of disciplines to meet the demands of a sustainable future.

At the University of NSW, adjunct professor Ian Lavering has been teaching sustainable energy management since 2001. It's a component of the university's master of business and technology, a postgraduate part-time degree that Lavering describes as an "MBA for engineers".

Over the past six years he has witnessed a seismic shift in thinking on energy management. "When we first started, the emphasis was solely on energy efficiency and energy savings.

"Now it's all about making money through energy efficiency rather than just saving it. It's all about cashing in on emerging opportunities.

"The students have varied backgrounds. Some come from the resources sector, others are IT or finance specialists or lawyers. There's even been a cane farmer from North Queensland whose chief interest was bio-ethanol."

But, according to Lavering, what they all have in common is the conviction that there are huge global gains to be made in an increasingly carbon-constrained world.

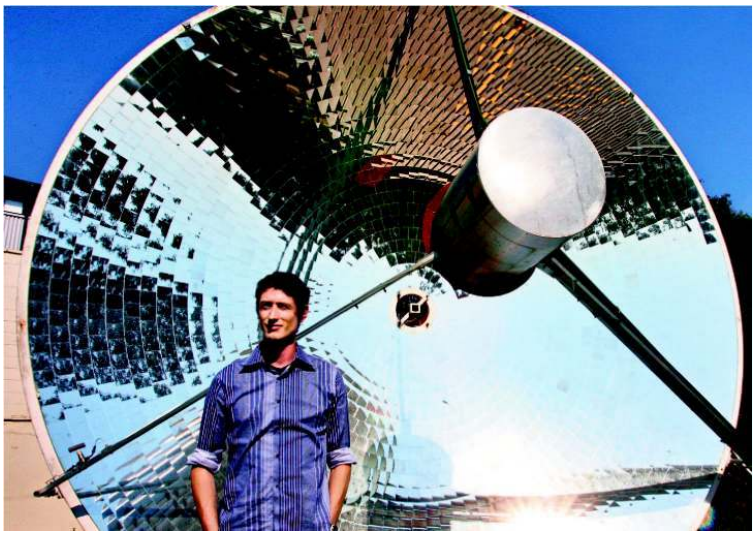
"They want strategies that will give their businesses and industries a competitive edge and emissions trading is at the forefront of their thinking."

"They recognise that Australia risks being sidelined and even penalised if it stays outside universal, emission-trading schemes and they're determined not to be left behind," Lavering says.

At the University of Sydney, the faculty of architecture's Bruce Forwood teaches sustainable design as part of the master of design science, exploring sustainable design in the built environment.

"Back in the late 1980s, the course was confined solely to energy conservation," he says. "Now the emphasis is much broader. We look at the effects of global warming, the impact of climate change and the new demands on water management, heating and cooling within the built environment – everything from suburban houses to skyscrapers.

"We consider buildings as a resource investment, starting with the extraction of resources, their manufacture



Looking for answers ... PhD student David Barton is examining energy alternatives.
Photo: Andrew Taylor

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and use and the impact this has on the environment," Forwood says.

"We follow the chain of resource investment through the life cycle of a building, including maintenance and operational costs. If we're serious about sustainability, then the rigorous assessment of a building's consumption and use of resources, including energy, is essential."

Sustainability also drives David Barton, a PhD student at the Australia National University's college of engineering and computer science. In a project that combines engineering with sociology, he's examining energy alternatives to costly diesel-generated electricity for the inhabitants of Norfolk and Lord Howe islands.

Despite electricity bills that can be five times higher than mainland prices, Barton says there has been very limited take-up of cheaper, greener alternatives. He's trying to identify the reasons for this reluctance.

"On Norfolk and Lord Howe there have been so many investigations, reports and recommendations for cost-effective power alternatives but nothing has happened," Barton says.

"I found the process of technological transfer isn't just a question of economics. If people on the ground aren't convinced of the direct benefit, then it won't happen."

Barton says that in these communities, just as in mainland ones, there's uncertainty surrounding the introduction of new technology.

"People aren't so much concerned with the technical details of kilowatts, efficiencies and capacity factors," he says. "They want to know how it will affect their community and their lives.

"If we really want to tackle renewable-energy development on a global scale we have to look at the local issues. If you understand the diversity of local, small-scale issues you'll be far better equipped to introduce alternative energy technologies on a much broader scale."

'When we first started, the emphasis was solely on energy efficiency and energy savings. Now it's all about making money through energy efficiency rather than just saving it.'
Ian Lavering, University of NSW