

THE AUSTRALIA INSTITUTE

University Capture

Australian universities and the fossil fuel industries

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The Australia Institute

Discussion Paper Number 95

June 2007

ISSN 1322-5421

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Acknowledgments

The authors would like to thank Professor Stuart Macintyre and Professor Simon Marginson for refereeing this paper. This paper has benefited from their comments and insights. The authors would also like to thank those academics who provided information, both on and off the record, without which this paper would not have been possible. Notwithstanding their input, the opinions expressed and conclusions drawn remain the responsibility of the authors.

Summary

In recent years, universities have been at the centre of a vigorous debate about the role of higher education in society. In particular, concerns have been raised about the effects of commercialisation of Australian universities on academic freedom and the quality of teaching.

This paper explores the increasingly close relationships between Australian universities and the fossil fuel industries. In addition to an overview of the links, there are three case studies - the University of Queensland, the University of Western Australia and Curtin University of Technology. It asks whether fossil fuel companies are gaining an inappropriate level of influence over the teaching and research priorities of universities. Is academic freedom jeopardised? Are the relationships with the industry threatening to bring universities into disrepute? Are universities being captured?

Commercialisation of universities

Since the 1980s, successive federal governments have introduced reforms to make Australian universities more financially independent and more commercially oriented in their teaching and research. In 2001, a Senate Inquiry into Australian universities argued that in response to government policies promoting commercialisation, public universities in Australia have been ‘pulling away from traditional academic orientations’ and pushing towards stronger market influences’ to become ‘entrepreneurial’ universities. It noted that universities are entering into contracts with businesses that ‘explicitly or implicitly restrict the rights of academics to undertake teaching and research without interference’. A survey of social science academics in the same year showed that many academics believe academic freedom is under threat due to commercialisation.

These concerns have been heightened by individual cases at Australian universities. In 2005 the University of Sydney succumbed to demands from Macquarie Bank to dissociate the University from an academic who released research critical of the Bank. In the same year, the administration at Curtin University expressed its displeasure when a professor at the university spoke publicly about Alcoa’s funding of the Alcoa Research Centre For Stronger Communities at the University, at the same time as the company was being criticised in the media over pollution from one of its plants damaging the health of a local community.

Universities and the fossil fuel industries

In 2003, the New Economics Foundation released a report which argued that many of Britain’s top universities ‘could be brought into disrepute’ by ‘walking hand-in-hand’ with fossil fuel companies. The report argued that:

In return for corporate sponsorship and contracts, universities are encouraging oil companies to steer the research agenda, tailoring courses to meet corporate personnel demands and awarding high profile positions to oil executives.

In Australia over the last decade the fossil fuel industries have become steadily more involved in Australian universities. Fossil fuel industry associations and fossil fuel companies have spent millions of dollars funding research projects and sponsoring university chairs, academic posts and even entire schools. The Australian Coal Association Research Program, for example, has allocated \$145 million to 929 different projects since 1992.

Likewise in 1999, the Minerals Council of Australia (MCA) set up the Minerals Tertiary Education Council (MTEC) with \$15 million to achieve ‘cultural change in universities’. It sponsors 12 lectureships and contributes to the development of course materials at several universities. A 2003 review of MTEC by the MCA found that some lecturers:

[a]re proving to be effective change agents by innovating, networking, collaborating, developing new programs, relating students, linking to industry and working outside traditional university frameworks.

Three case studies

The extent of the close relationships between Australian universities and the fossil fuel industries is evident through a few examples from the University of Queensland, the University of Western Australia and Curtin University of Technology.

In the School of Engineering at the University of Queensland for instance, there is the Xstrata Chair of Metallurgical Engineering, the BHP Billiton Mitsubishi Alliance Chair of Mining Engineering, the BHP Billiton Mitsubishi Alliance Chair of Minerals Processing and the Chair of Mining Safety founded by Rio Tinto and other fossil fuel companies. Many of these chairs are used by the fossil fuel companies to ‘oversee and guide’ the degree structures and course materials. Moreover, it is largely the same companies which fund some of the research projects undertaken in the School and its associated research centres.

In Western Australia, relationships between universities and the fossil fuel industries are dominated by oil and gas companies. Both the Chancellor of the University of Western Australia and the Chancellor of Curtin University are current directors of major oil and gas companies, Woodside and Coogee Resources. In fact, Woodside is a major sponsor of the School of Oil and Gas Engineering at the University of Western Australia. It contributed to the establishment of the School in 2000 with a \$1 million grant and it has provided almost \$2 million to help create the North West Shelf Venture Chair of Oil and Gas Engineering and the Chair of Oil and Gas Engineering in the School. Woodside personnel sit on the University advisory boards, committees and many have participated in the School’s teaching and research programs.

Woodside is also prominent at Curtin University. Curtin is home to the Woodside Hydrocarbon Research Facility and the Chair of Hydrocarbon Research both funded by the company. It is also the location for the Western Australian Energy Research Alliance, a joint venture funded in part by Woodside and Chevron Texaco, and the Centre of Excellence in Cleaner Production supported by Wesfarmers. Woodside’s funding of the Hydrocarbon Research Facility was criticised in 2005 after it was revealed in the press that the University made a \$20,000 donation to the Kurdistan Regional Government in Iraq on behalf of Woodside.

Academic freedom

Are the links between universities and the fossil fuel industries a threat to academic freedom? In the case of teaching the concern is that industry needs for flexible and industry relevant degrees and courses, particularly in university accredited award courses, will lead to curriculums increasingly tailored to the short-term needs of industry, which may narrow the education received by students. Further industry participation in teaching programs could compromise the independence of the course approval process by the relevant academic board or committee. For example, evidence from the University of Western Australia indicates that fossil fuel sponsors ‘approved the rationale for restructure’ of the undergraduate program at the School of Oil and Gas Engineering. In 2005, the School estimated that about 70 industry representatives had been involved in the development, coordination and teaching of oil and gas units at an estimated cost of \$600,000 to industry per year.

One of the roles of university lecturers and researchers in mining and engineering schools is to use their expertise to assess and comment on the practices of industry. The concern is that academics may refrain from making critical remarks to their students, governments or the public about the practices of companies or industries with which they or their university have a financial association.

In the case of research, the primary concern is that short-term applied research in the private interest could crowd out basic research in the public interest. Basic research is important because it provides the foundation for scientific advancement and training and acts as the body of scientific knowledge that underpins more applied research.

However, a number of the schools and centres with ties to the fossil fuel industry are heavily geared towards short-term research for the sponsoring industry or company. For example, the Sustainable Minerals Institute at the University of Queensland states that its business ‘is research for, and in the closest possible association with, the minerals industry’. As far back as 1996, a researcher at another centre at the University of Queensland claimed that ‘part of the attraction for the companies is that they have a very big say on how we conduct our research’.

The evidence presented in this paper indicates that there are grounds for concern that universities could be captured and that academic freedom could be compromised as commercial interests penetrate decision-making in universities. It is argued that universities should have structures that keep them and the activities of their staff transparent and accountable. These could include a registry of interests where universities disclose all relevant interests and contacts with industry. In addition, universities need to have in place clear ethical guidelines to insulate them and their staff from the commercial pressures and conflicts that can arise from relationships with industry.

Without such structures and with the increasingly close relationships between Australian universities and the fossil fuel industries, it is likely academic freedom will be jeopardised, if it has not been already. As this happens universities could become captured by the interests of the fossil fuel industries and brought into disrepute.

1. Introduction

1.1 Commercialisation of universities

Beginning with the Dawkins reforms in the 1980s, federal governments have initiated a series of reforms designed to make Australian universities more financially independent and more commercially oriented in their teaching and research (Marginson 1997). Since 1996, the Coalition Government has sought to entrench an 'enterprise' culture in universities by reducing public funding and imposing various requirements and constraints. This process began with the first Coalition budget which reduced the operating grants for universities by six per cent over four years (SEWRSBEC 2001). In 1999, the Government changed the formula for allocation of research resources to reward universities that gained external research funding (NTEU 2001), although National Competitive Grant funding is weighted more heavily than industry funding. The Federal Government also increased the capacity of universities to earn non-government income by, among other things, the development of incentives to increase collaboration with industry. This was largely done through the Cooperative Research Centre (CRC) program and the Australian Research Council's Linkage Grant program. In addition, the Government further deregulated fees for Australian and international students (SEWRSBEC 2001).

The effects of these changes have been far-reaching. Among OECD countries, Australia is now the fifth most reliant on private sources of funding for tertiary education with 52 per cent deriving from private sources. This compares to 35 per cent of funding from private sources in 1995 (OECD 2006). The greater reliance on private funding reflects the decline in public investment on the one hand, and the subsequent need of universities to seek out private income on the other.

The withdrawal of the Commonwealth from higher education has sharply reduced the proportion of public funding. Since 1995, public funding for tertiary education has fallen from 1.2 per cent of GDP to 0.8 per cent in 2003 (OECD 1998; OECD 2006). At the same time universities have increased revenue from donations, investments and other fees for services. For example, in the ten years to 2005 university income from fees and charges increased from \$880 million to \$3.3 billion, or as a percentage of total university revenue, from 11.7 per cent to 23 per cent (DEETYA 1997; DEST 2006a). However, the increase in private funding for Australian universities has not been enough to compensate for the relative decline in public investment. Between 1995 and 2003, public spending per student fell by 30 per cent, and total public and private spending per student fell by six per cent (OECD 2006).

Those who favour the greater commercialisation of universities argue that universities 'have no choice but to change' if they are to flourish or even survive in the new regulatory environment (Coady 2000, p. 10; Schwartz 2000). In this view, universities must adopt the mindset and value system of an enterprise and develop the capacity to attract private funds to substitute for the reduction in public funding by operating more like a business. It is argued that this path will enable Australian universities to meet the demands of mass higher education and to focus the critical research in specialised fields necessary to compete internationally for students and research funds.

1.2 Academic freedom

The commercialisation of universities has affected not just the structure of their funding but the values, culture and practices within the institutions. The process was noted by the 2001 Senate Inquiry into Australian universities.

In response to government policies promoting the commercialisation of higher education and financial self-reliance for institutions, public universities in Australia have been ‘pulling away from traditional academic orientations’ and pushing towards stronger market influences’ to become ‘entrepreneurial’ universities (SEWRSBEC 2001, p. 17).

In particular, serious concerns have been raised about the state of academic freedom, which can be defined as the freedom to research and teach, and communicate the results of these pursuits to peers and the public, without pressure from political, commercial, university or other interests (Akerlind and Karooz 2003). UNESCO defines it as:

[t]he right, without constriction by prescribed doctrine, to freedom of teaching and discussion, freedom in carrying out research and disseminating and publishing the results thereof, freedom to express freely their opinion about the institution or system in which they work, freedom from institutional censorship and freedom to participate in professional or representative academic bodies (UNESCO 1997).

Academic freedom serves important public functions.

Academic freedom is granted in the belief that it enhances the pursuit and applications of worthwhile knowledge, and as such is supported by society through funding of academics and their institutions. Academic freedom embodies an acceptance by academics of the need to encourage openness and flexibility in academic work, and of their accountability to each other and society in general (UNESCO 1997, p. 132).

Academic freedom can also apply at an institutional level where the collegial aspects are emphasised. In this case, universities have the right to autonomy and self-governance in the determination of academic policy. Limits placed on universities’ ability to set their own priorities for research and teaching infringe on their autonomy and by implication on the individual freedoms of academics. Universities that function as research centres undertaking specific intellectual inquiries predetermined by private sources of funding, or restricted in their desire to pursue areas of inquiry due to external influence including government, cannot be said to be exercising academic freedom (Miller 2000).

Marginson (2001) argues that in the ‘enterprise university’ a particular structure of institutional and academic incentives governs teaching and learning. The structure rewards those able to secure external funding, especially for research. This tends to distort research towards short-term objectives and confine it to suit the interests and preferences of funding organisations. Under such pressures universities develop commercially orientated administrations with the skills to implement business plans,

market their wares and develop links with industry – in short, to mimic business (ARC 2001).

In such an environment the collegial practices, individual freedoms to control and direct research and teaching, and the ability to engage in intellectual criticism are increasingly decided upon with reference to external relationships, funding sources and the desired positioning of the university by management (Marginson and Considine 2000). Marginson argues that academic freedom is not eliminated by these trends, but it is ‘tamed and more closely harnessed to economic interest and state control and hence to a particular kind of social order’ (2007, p. 9).

Many people have pointed to the dangers inherent in these trends. Macintyre notes that academic freedom is not simply a privilege afforded to academics; it is the very basis of a genuine civil society and a healthy democracy, something that Prime Minister Menzies, among others, recognised (Macintyre 2007). The Productivity Commission has raised concerns about the possible effects of commercialisation on universities. It noted that the transfer and diffusion of knowledge for community wellbeing could be threatened by commercial pressures. It found that a greater focus on academic freedom could improve the falling levels of job satisfaction and morale among Australian scientists (Productivity Commission 2007).

The Senate inquiry raised similar concerns about the impact of commercial pressures on the freedom of inquiry and teaching in Australian universities. Where the value of research is measured by the revenue it recoups, universities are entering into contracts with business that ‘explicitly or implicitly restrict the rights of academics to undertake teaching and research without interference’ (SEWRSBEC 2001, p. 19).

In a 2001 survey of social science academics in Australia, many of these freedoms were confirmed as being important aspects of academic freedom and were seen by many academics as being under significant threat due to commercialisation (Kayrooz *et al.* 2001). If these institutional and personal freedoms are undermined, the unique place that universities have in society, and the trust in which they are generally held by the community, may be undermined.

1.3 University capture

University capture is the process whereby corporations are able to gain an inappropriate level of influence over the teaching and research priorities of universities by sponsoring or otherwise supporting financially departments, schools, centres, chairs and academic posts (Muttit 2003).

Macintyre has observed that ‘all countries with reputable research arrangements see the need for a buffer between the paymasters and the investigators’ (Macintyre 2007, p. 57). Universities need to have in place ethical guidelines that insulate universities and their staff from the commercial pressures and conflicts that can arise from relationships with industry. Ethical guidelines need to have strong measures designed to avoid and disclose conflicts of interest. They also need to distinguish between desirable and undesirable university-industry relationships. In doing so, they need to separate the norms of academia from those of industry.

Some of these norms can be broadly distinguished as follows. Whereas research in academia is mostly undertaken for the advancement of knowledge in a particular field and is driven by curiosity over the long-term, research in industry is undertaken in the pursuit of profit and is commercially driven where quantifiable returns can be accrued in the short to medium-term. Whereas academia is concerned with openness and shared knowledge, industry is concerned with private knowledge and restriction of the dissemination of knowledge to ‘competitors’. Whereas academics have a ‘social contract’ with society to inform and advise objectively, industry executives have a ‘commercial contract’ with their shareholders to make returns on investments.

At the three universities discussed in this paper, the codes of ethics for research are largely derived from the *Joint National Health and Medical Research Council (NHMRC) / Australian Vice Chancellors’ Committee (AVCC) Statement and Guidelines on Research and Practice*, which acts as a guide to universities by providing a framework of ‘minimum acceptable standards’ (AVCC 1997). The statement warns that ‘competitive pressures’ can ‘distort sound research practice’ and, among other things, place an ‘undue emphasis on safe but mundane research at the expense of more creative and more innovative lines of study’. The guidelines that follow set out general principles for research conduct and for addressing conflicts of interest. For example, Section 6 states that ‘institutions must have clearly formulated policies regarding potential conflicts of interest’ and that these ‘procedures must cover the full range of potential interests’ (AVCC 1997).¹

While all Australian universities have ethical guidelines, some are better than others. The Australian National University appears to have adopted a strong set of ethical guidelines governing research and conflicts of interests. Its policy is detailed and explicit and, importantly, the language is direct. For example, Section 7 of the Responsible Practice of Research policy states:

The responsible practice of research requires the disclosure of any potential conflict of interest. The University has in place a policy on *Conflict of Interest and Commitment* (1303a/2002). It covers appropriate disclosure of affiliation with, or financial involvement in, any organisation or entity with a direct interest in the subject matter or materials of researchers (ANU 2003).

The guidelines at the University of Western Australia, which are also largely based on the joint statement, are much the same.

Disclosure of any potential conflict of interest is essential for the responsible conduct of research. Researchers have an obligation to disclose any affiliation with, or financial involvement in, any organisation or entity with a direct interest in the subject matter or materials of researchers (UWA 2006a).

In contrast, Section 10 of the Research Ethics Policy at the University of Queensland states:

Researchers should be circumspect when asked to undertake research. This may entail refraining from unethical work which is in conflict with the duties

¹ The *Joint NHMRC / AVCC Statement and Guidelines on Research and Practice* is currently under review.

and loyalties owed to the University, collaborators, the profession, members of their own discipline, and society in general and its laws (University of Queensland 2006a).

Despite the existence of ethical guidelines, the growing networks of links between universities and private and public funding sources means the paymaster can still call the tune. The dangers of this have been apparent in the United States for some time as typified, according to one analyst, by the University of California at Los Angeles (UCLA).

Corporations have contracted with the university for research, hired its professors as consultants, and endowed professorships. Foundations have established independent operating fiefdoms on the UCLA campus, and tycoons have become the advisors and namesakes of departments (Soley 1995, p. 6).

The President of Harvard University has publicly expressed his concern.

I worry that commercialization may be changing the nature of academic institutions in ways that we will come to regret. By trying so hard to acquire more money for their work, universities may compromise values that are essential to the continued confidence and loyalty of faculty, students, alumni and even the general public (Bok 2003, p. x).

In 2003, the New Economics Foundation released a report which argued that many of Britain's top universities 'could be brought into disrepute' by 'walking hand-in-hand' with fossil fuel companies. The report argued that:

In return for corporate sponsorship and contracts, universities are encouraging oil companies to steer the research agenda, tailoring courses to meet corporate personnel demands and awarding high profile positions to oil executives (Muttit 2003, p. 2).

In Australia a worrying trend is emerging that bears close resemblance to the experience of some universities in the United States and in the United Kingdom. For example, in 2005 the University of Sydney succumbed to demands from Macquarie Bank to disassociate the university from an academic who released research critical of the Bank (West 2006). In an interview on the ABC's *7.30 Report* in October 2005, Dr John Goldberg, an Honorary Associate in the Faculty of Architecture at the University, discussed his research which found that toll roads in Sydney and Melbourne, some of which are owned by Macquarie Bank, are not financially viable without government subsidies (ABC 2005a). Following the ABC program, Macquarie Bank executive and former federal Liberal MP Warwick Smith wrote to the University's Vice-Chancellor Gavin Brown calling on the University 'to publicly disassociate itself from Dr Goldberg's paper' (West 2006). Responding to Macquarie Bank's demands, Professor Brown issued a public statement disassociating the University from Dr Goldberg's research. The University went one step further to revise its template for the engagement of honorary associates to ensure that they seek prior approval from the relevant Dean for public comment (Brewer 2005).

In October 2005, the Alcoa Alumina plant at Yarloop in Western Australia received critical media coverage after local residents alleged that pollution from the plant was causing health problems (ABC 2005b). When Gavin Mooney, Professor of Health Economics at Curtin University, was approached by the media and he pointed out that Alcoa was simultaneously funding the Alcoa Research Centre For Stronger Communities at Curtin University. The University administration expressed its unhappiness that the academic had spoken publicly about the issue.² According to Curtin's 2005 annual report Alcoa has allocated \$1.5 million to the centre 'to support and foster sustainability across the globe' (Curtin University of Technology 2006a, p. 6).

In the next section we consider the involvement of fossil fuel companies in Australian universities. We canvass the actions of industry associations and individual companies to assess whether the danger of university capture identified in Britain and the United States also exists in Australia.

² Personal communication with Professor Mooney, 2 August 2006.

2. Involvement of fossil fuel companies in Australian universities

2.1 Fossil fuel industry associations

Over the last decade the fossil fuel industries have become steadily more involved in Australian universities. At the forefront of this push has been the coal industry as represented by the Minerals Council of Australia (MCA). The MCA's strategic objective is to advocate public policy on behalf of its members, which include Australia's largest fossil fuel companies, BHP Billiton, Rio Tinto, and Xstrata (MCA 2007). In 1999, the MCA established the Minerals Tertiary Education Council (MTEC) 'to build a world-class tertiary learning environment for the education of professionals for the Australian minerals industry' (MTEC 2006). Stemming from a 1998 MCA report entitled *Back from the Brink: Reshaping minerals tertiary education* (MCA 1998), which argued for 'cultural change within universities' to 'challenge traditional ways' of delivering mining education, the MCA allocated \$15 million to MTEC to develop course materials and employ academic staff (MTEC 2006). Since 2003, the MCA has continued to support MTEC with an estimated \$1.2 million per year.³

The significance of MTEC is highlighted by its lectureship program. Since 2000, MTEC has financially supported lecturers in earth sciences, mining engineering and metallurgy at various universities. Currently, 12 lectureships are funded by the program and each is tasked with developing and teaching courses that are supported by the industry. In addition, professional development workshops are held twice a year by MTEC 'to help lecturers feel part of the MTEC team and understand the goals of MTEC as well as networking and sharing ideas' (MTEC 2006). A review of MTEC by MCA in 2003 found, in relation to the lectureship program, that some lecturers:

[a]re proving to be effective change agents by innovating, networking, collaborating, developing new programs, relating students, linking to industry and working outside traditional university frameworks (Galvin and Carter 2003, p. iii).

Part of the objective of MTEC has been for the industry to have a greater role in the development of course materials. The 1998 *Back from the Brink* report concluded that while universities must continue to shape undergraduate education, 'the minerals industry must play a greater role in the education process by contributing experience, resources and above all leadership' (MCA 1998, p. 14). The most recent and significant initiative to this end is Mining Education Australia (MEA). MEA is a joint venture between MTEC and the University of Queensland, University of New South Wales and Curtin University to establish the National Mining Engineering School.⁴ Under the agreement the three universities have agreed to recast the way they teach the third and fourth year mining engineering degree programs. As a background paper on MEA states:

[t]he three partner universities will contribute to develop and deliver high quality education in mining education under a formal structure that ensures

³ Personal communication with Kevin Tuckwell, 25 August 2006.

⁴ Personal communication with Jim Litster, 18 May 2007.

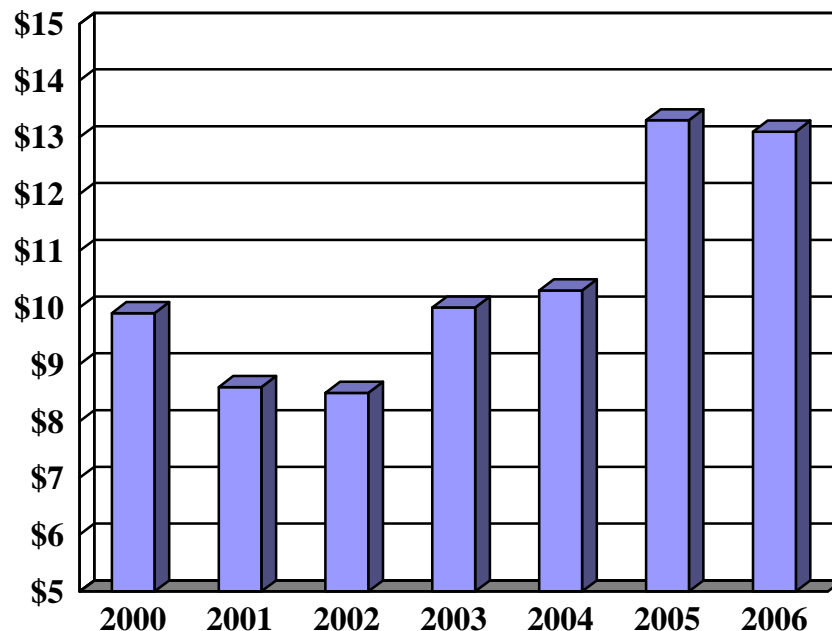
quality, relevance and attractiveness to students and to the minerals industry (Tuckwell 2006, p. 1).

Much of MTEC's influence in universities derives from the financial support it brings to mining programs. The 2003 review of MTEC claimed that some courses at universities in which MTEC is involved are only being sustained by industry funding (Galvin and Carter 2003). Acknowledging this fact, Dr Kevin Tuckwell, Executive Director of MTEC stated that:

[t]he financial arrangements need to be such that it would hurt any of the parent universities to pull out of the MEA School and that they are better off financially and academically being involved in the school (Tuckwell 2006, p. 3).

While the MCA through the establishment of MTEC has been mainly concerned with teaching and course materials, other industry bodies have focussed on university research. One such body is the Australian Coal Association Research Program (ACARP). ACARP sponsors collaborative research projects with universities and research centres 'for the benefit of the coal mining industry' (ACARP 2006a). Since 1992, ACARP has allocated \$145 million to fund 929 different projects. As Figure 1 shows, ACARP has been increasing its funding for research. In 2005-06 it channelled \$13.1 million into 80 new projects at various universities and was supporting a total of 271 projects with \$54 million in funding (ACARP 2006b). A five cent per tonne levy on Australian coal companies funds ACARP and all projects are vetted by an industry panel and 'enjoy industry-wide support' (ACARP 2006a).

Figure 1 ACARP funding for research, in millions, 2000-2006



Source: ACARP, Annual Reports, 2000-2006.

Coal companies along with other mining companies also channel funds into university research projects through AMIRA International, formerly the Australian Minerals

Industry Research Association. AMIRA, like ACARP, seeks to deliver commercial benefits to its members through joint research projects that are ‘demand driven and output orientated’ (AMIRA International 2005, p. 2). Although it is international in scope, the majority of AMIRA’s \$15.1 million in research spending for 2005-06 was directed to Australian universities and research centres (AMIRA International 2006a).

2.2 Fossil fuel companies

This section focuses on evidence from all Australian universities except for the three universities that are explored in more detail in the following section – the University of Queensland, the University of Western Australia and Curtin University of Technology.

Beyond interactions at an industry association level, fossil fuel companies also form relationships with universities as individual entities. To begin with, senior personnel from many of Australia’s largest fossil fuel companies are active in university governance. As Table 1 shows, several chancellors of Australian universities have links to the fossil fuel industries. Gordon Martin (the Chairman of Coogee Resources) is the Chancellor of Curtin University of Technology, Michael Chaney (a director of Woodside) is Chancellor of the University of Western Australia, Jerry Ellis (a former Chairman of BHP) is the Chancellor of Monash University and John Phillips (a former director of Western Mining Corporation) is Chancellor of the University of Western Sydney. Similarly, the former Chancellor of Deakin University, Richard Searby, was a director of Woodside, Rio Tinto and Shell Australia, and the former Chancellor of Victoria University of Technology, Peter Laver, was a senior manager at BHP. Further, a former Chancellor of RMIT University was previously on the board of Orica. In addition, directors from Centennial Coal, ARC Energy, Wesfarmers and Alinta, among others, have all held positions at various levels in university governance.

Fossil fuel companies are also active sponsors of university chairs and academic posts (Table 2). The most prominent examples are university chairs where the sponsoring company has naming rights. The University of Adelaide has the Santos Chair of Petroleum Engineering, the University of Queensland has the Xstrata Chair of Metallurgical Engineering and the University of Newcastle has the newly established BHP Billiton Chair of History and Technology. Interestingly, the job description for the BHP Billiton Chair specifies that one of the duties of the chair is to ‘publicise and maintain the relationship with BHP Billiton and the University of Newcastle’ (University of Newcastle 2006).

Aside from the 12 lectureships that MTEC sponsors, individual fossil fuel companies sponsor a number of professorships including the BHP Professor of Environmental Science at the University of Wollongong and the BlueScope Steel Professor of Steel Structures at the University of Sydney.⁵ From these cases alone it appears that large fossil fuel companies have shown a strong willingness to establish university chairs in their own name and sponsor academic posts.

⁵ BlueScope Steel, formerly known as BHP Steel was a business group of BHP Billiton.

Table 1 Some examples of the revolving door between the fossil fuel industries and university governance

University	University position	Industry position
Curtin University of Technology	Gordon Martin, Chancellor (2006-)	Chairman of Coogee Resources (2005-)
Deakin University	Dr Richard Searby, former Chancellor (1997-2005)	Former Director of Woodside (1998-2004), Rio Tinto (1977-1997), and Shell Australia (1977-1998)
Monash University	Jerry Ellis, Chancellor (1999-)	Former Chairman of BHP (1997-1999)
RMIT University	Donald Mercer, former Chancellor (1999-2002)	Former Director of Orica
University of Central Queensland	Rennie Fritschy, Chancellor (2004-)	Former Chief Executive Officer of Queensland Alumina
University of Melbourne	Dr John Rose, former Director of the Melbourne Business School (1984-2000)	Former Director of Woodside (1990-2005)
University of New South Wales	Dr Peter Dodd, former Chief Executive and Dean of the Australian Graduate School of Management	Director of Centennial Coal
University of Queensland	Norbury Rogers, member of the University Senate	Director of Magellan Petroleum
University of Western Australia	Michael Chaney, Chancellor (2006-)	Former Chief Executive Officer of Wesfarmers and current Director of Woodside (2005-)
	David Griffiths, member of the University Senate	Director of ARC Energy
	Dr Tony Howarth, Deputy Chair of the Business School	Chairman of Alinta

	John Akehurst, member of the board of the Business School	Director of Alinta and former Managing Director of Woodside
	Don Voelte, member of the board of the Business School	Managing Director and Chief Executive Officer of Woodside
	Richard Goyer, member of the board of the Business School	Managing Director of Wesfarmers
University of Western Sydney	John Phillips, Chancellor (2001-)	Former Director Western Mining Corporation
Victoria University of Technology	Peter Laver, former Chancellor (1995-2000)	Former Senior Vice President, BHP Minerals Environment, Safety and External Affairs.

Source: Coogee Resources (2007), Woodside (2002), Monash University (2007), Centennial Coal (2006), CQU (2004), Magellan Petroleum (2005), Orica (2002), UWA (2006), ARC Energy (2005), UWA (2006a), PESA (2006), UWA (2006b), UWS (2007) and BHP (1996).

Note: dates included where available.

Fossil fuel companies are also involved with Australian universities in other ways. The Australian School of Petroleum at the University of Adelaide highlights the new types of relationship fossil fuel companies are now forming with universities. Considered the largest single industry sponsorship to a public university in Australia, in 1999 Santos agreed to provide \$25 million over ten years to the university to establish a school of petroleum engineering (University of Adelaide 1999). The school, which merged with the National Centre for Petroleum Geology and Geophysics in 2003 to form the Australian School of Petroleum, is located in the Santos Petroleum Engineering Building which opened in 2002 (University of Adelaide 2002; 2003). The building, together with the Santos Chair of Petroleum Engineering and much of the laboratory equipment, is provided from the \$25 million grant from Santos. Professor Peter Behrenbruch, the former Santos Chair of Petroleum Engineering and former Chief Reservoir Engineer with BHP Billiton, said in 2002 that ‘the school is focussed on the practical needs of the international oil and gas industry’ (University of Adelaide 2002). Outside of its petroleum and gas focus, the School also hosts the Cooperative Research Centre for Greenhouse Gas Sequestration.

While fossil fuel companies sponsor research through industry bodies like ACARP and AMIRA, they also direct funding individually for research. Once again, the Australian School of Petroleum at the University of Adelaide is a good example. In 2001, BHP Billiton committed \$100,000 to the school for research (University of Adelaide 2001). And in 2003, ExxonMobil and its Australian subsidiary Esso directed a further \$500,000 for ‘collaboration in educational and scientific research projects’ to the school (University of Adelaide 2003).

Other universities and schools have also been the recipients of significant fossil fuel funds. The BHP Institute of Steel Processing and Products at the University of Wollongong receives \$500,000 per year for research and other educational programs (BHP Billiton 2001). Similarly, in 2000 BHP Billiton provided funding to the University of Melbourne for the BHP Laboratory for Environmental Chemistry (BHP Billiton 2000). Unsurprisingly, fossil fuel companies appear to target funding for research to particular schools and research institutes where they have other existing relationships such as the sponsorship of a university chair, laboratory or building.

Table 2 Some fossil fuel sponsored academic positions at Australia universities

University	Position	Sponsor
University of Adelaide	Santos Chair of Petroleum Engineering	Santos
Curtin University of Technology	Chair of Hydrocarbon Research	Woodside
	Chair of Cleaner Production	Wesfarmers
	Lectureship in Mining Engineering	MTEC
	Lectureship in Metallurgy	MTEC
James Cook University	Lectureship in Earth Sciences	MTEC
University of Melbourne	Lectureship in Earth Sciences	MTEC
Monash University	Lectureship in Earth Sciences	MTEC
Murdoch University	Lectureship in Metallurgy	MTEC
University of Newcastle	BHP Billiton Chair of History and Technology	BHP Billiton
University of New South Wales	Lectureship in Mining Engineering	MTEC
University of Queensland	Xstrata Chair of Metallurgical Engineering	Xstrata
	BMA Chair of Mining Engineering	BHP Billiton Mitsubishi Alliance (BMA)

	BMA Chair of Minerals Processing	BHP Billiton Mitsubishi Alliance (BMA)
	Chair of Mining Safety	Rio Tinto and others
	Lectureship in Mining Engineering	MTEC
	Lectureship in Metallurgy	MTEC
University of Sydney	BlueScope Steel Professor of Steel Structures	BlueScope Steel
University of Tasmania	Lectureship in Earth Sciences	MTEC
University of Western Australia	North West Shelf Venture Chair of Oil and Gas Engineering	Woodside
	Chair of Oil and Gas Engineering	Woodside
	MCA Lectureship	MTEC
University of Wollongong	BHP Professor of Environmental Science	BHP

Source: Santos (1999), Curtin University of Technology (2005a), Wesfarmers (2005), MTEC (2006), Australian (2006), University of Queensland (2005a), University of Queensland (2005), University of Sydney (2006), Centre for Oil and Gas Engineering (2001) and University of Wollongong (2006).

The Cooperative Research Centre (CRC) program provides a further avenue for the fossil fuel industries to partner with universities in research. Established in 1990 by the Federal Government, the CRC program aims to encourage collaborative research between universities, government and industry. Since it began, more than \$11 billion (cash and in-kind) has been directed to the CRC program. This includes more than \$2.8 billion from universities and \$2.1 billion from industry (DEST 2006b).

According to the 2006 CRC directory, there are currently eight CRCs focussed on research in mining and energy (DEST 2006c). Each receives significant funding from fossil fuel companies, and most research is focussed on clean coal technologies and mineral exploration. For example the CRC for Greenhouse Gas Technologies, which receives funding from ACARP, BHP Billiton and Xstrata among others, is exclusively focussed on geo-sequestration, the preferred option of the coal industry and the Federal Government for addressing carbon emissions (DEST 2006). There are no CRCs for solar, wind or any other form of renewable energy. However, in 2004 an application for a solar CRC was rejected by the CRC committee (Canberra Times 2004). While the CRC program has proven popular, concerns have been raised that CRCs are becoming too commercial in orientation. Indeed, one CRC director has claimed that the program is now nothing more than ‘an industry-support program’

because a CRC must demonstrate that it ‘will improve the bottom line for some significant industries’ (Macnamara 2006).

In summary, when we consider the actions of fossil fuel industry associations and fossil fuel companies it is evident that the industry as a whole is intimately involved in Australian universities. It is not uncommon for university chancellors and senior academic staff to be former or even current directors of fossil fuel companies, nor is it uncommon for university chairs and schools to be named after the sponsoring company. However, the examples in this section represent only a sample from the higher education sector. In the next section, we seek to explore in more depth the types and forms of relationships between the fossil fuel industries and Australian universities by way of three case studies.

3. Three case studies

3.1 Introduction

While it is evident that the fossil fuel industries are involved in Australian universities, it is not clear whether Australian universities are being ‘captured’. Are fossil fuel companies gaining an inappropriate level of influence over the teaching and research priorities of universities? Is academic freedom jeopardised? Are the relationships with the industry threatening to bring universities into disrepute?

In this section we explore these questions by considering three universities; the University of Queensland, the University of Western Australia and Curtin University of Technology. We have chosen these three because they have particularly close links with the fossil fuel industries. In doing so, we canvass the types of relationships that universities engage in with the fossil fuel industries and the effects this could have on teaching and research.

3.2 The University of Queensland

Industry links

At the University of Queensland, the Faculty of Engineering, Physical Sciences and Architecture is the location for the majority of disciplines relevant to the fossil fuel industries. The faculty, as its website states, works ‘in partnership with industry’ on programs that are ‘relevant to their needs’ (University of Queensland 2006b). The head of the School of Engineering, Professor Jim Litster, is a member of the Joint Industry/University of Queensland taskforce into minerals education (AUSIMM 2005). His colleague, Professor Peter Hayes, holds the Xstrata Chair of Metallurgical Engineering in the School. When Xstrata’s sponsorship was announced in 2005, the Vice-Chancellor, Professor John Hay, said ‘Xstrata has shown great vision’ in sponsoring the Chair and that the ‘initiative moves the longstanding co-operation between Xstrata [and] UQ to a new level’. Xstrata has allocated \$1.5 million to contribute to funding the chair over ten years beginning in 2006 (University of Queensland 2005a).

In addition, the School of Engineering has the BMA Chair of Mining Engineering and the BMA Chair of Minerals Processing which are sponsored through a \$2.7 million grant from the BHP Billiton Mitsubishi Alliance (BMA) (University of Queensland 2005b). Moreover, the Chair of Mining Safety in the School of Engineering was established through a grant from mining companies including Rio Tinto in 1998 (Rio Tinto Limited 1999). MTEC also funds two lectureships at the school, one in mining engineering and one in metallurgy (MTEC 2006). The school as a whole receives more than \$7 million per year in research funding related to the minerals industry (University of Queensland 2005a).

The Faculty of Engineering, Physical Sciences and Architecture is also linked to the Sustainable Minerals Institute (SMI) whose purpose ‘is to provide knowledge-based solutions to the sustainability challenges of the global minerals industry’ (SMI 2004).

The SMI was established in 2001 with a \$10 million grant from the State Government with the condition that the university contributes \$2 million and industry matches the \$10 million over ten years (SMI 2003). Its governing board was ‘developed in extremely strong association’ with industry and government, and its chairman, Nick Stump, is the former Chief Executive of MIM Holdings, which has since been acquired by Xstrata (SMI 2006a). In addition, of the 14 members of the board nine are from the mining industry (SMI 2007).

The focus of the SMI is to identify ‘major challenges facing the international minerals industry’ and to develop ways to respond to them (SMI 2003, p. 3). Its director, Professor Don McKee, argues that collaboration with industry is important ‘because our industry clients are increasingly requiring collaborative teams to undertake substantial projects’ (SMI 2004, p. 5). These clients include BHP Billiton, Rio Tinto, Anglo Coal, Xstrata and Newmont. Many of the research projects and courses on offer are geared to industry needs, including a number of large projects that are funded by ACARP.

Six research centres that have similar structures and ties to the industry fall under the SMI umbrella. One is the WH Bryan Mining Geology Research Centre (BRC). Established in 1990 it provides ‘research, technical innovation and technology transfer to the mining industry’. Six of its ten board members are from industry and 11 of the 27 research projects listed in the 2000-04 annual report are part-funded or fully-funded by fossil fuel companies or related industry bodies (BRC 2004)⁶. Of similar orientation is the Centre for Social Responsibility in Mining (CSRSM), which ‘works closely with industry to identify research needs and opportunities’ (CSRSM 2006, p. 1). According to the CSRSM’s website, five of the ten members of the Centre’s advisory board are from industry and all of the six research projects listed in the 2005 annual report receive some funding from industry (CSRSM 2007; CSRSM 2006). Also, some of the Centre’s agreements with industry do not include a right to publish clause, although the majority do.⁷ The Julius Kruttschnitt Mineral Research Centre (JKMRC) is also under the SMI umbrella. Like the other centres, its research is developed in response to the challenges ‘faced by our customers’ many of whom are coal companies or industry-related bodies (JKMRC 2006). In 2003, AMIRA, ACARP and Rio Tinto were among a range of coal-based sponsors for research projects. ACARP alone directed more than half a million dollars to four projects at the centre (JKMRC 2003; ACARP 2003; ACARP 2004).

There are grounds for concern that close ties between the fossil fuel industries and universities could result in corporate interests having an inappropriate level of influence over teaching and research. As the Productivity Commission stated, ‘universities’ core role remains the provision of teaching and the generation of high quality, openly disseminated, basic research’ (Productivity Commission 2007, p. xxiii). For teaching, the concern is that industry needs for flexible and industry relevant degrees and courses will lead to curriculum increasingly tailored towards industry which may narrow the breadth of the education received by students (Muttit 2003; Biggs 2002). This is particularly concerning for award courses (as opposed to non-award courses), which are accredited by the university and carry recognition in other universities. While some postgraduate courses are non-award courses, almost all

⁶ The BRC produced one ‘annual report’ for the period 2000-04.

⁷ Personal communication with the CSRSM, 11 May 2007.

teaching at an undergraduate level is for award courses. For research, the primary concern is that short-term applied research in the private interest could crowd out long-term research in the public interest (SEWRSBEC 2001; Laver 2001; NTEU 2001). The problem with too little basic research is that it provides the foundation for scientific advancement and training, including enhancing the body of scientific knowledge that underpins more applied research. Without basic research, therefore, national and international recognition could suffer, international citations could fall and National Competitive Grant funding could become sparse.

There is a risk that university lecturers and researchers will be constrained in fulfilling their duties. One of the roles of university lecturers and researchers in mining and engineering schools is to use their expertise to assess and comment on the practices of industry. In Australia, there have been some prominent cases of mining companies adopting inadequate safety or environmental standards. Other than company employees and public agencies, academic experts are best placed to advise the public and government on these issues. However, if these academics are employed by, or have a financial association with, fossil fuel companies then they could feel constrained or gagged. In the same way, lecturers could refrain from making critical remarks to their students about the practices of companies with which they or their university have an association. In other words, academics may begin to practice self-censorship. As Macintyre has pointed out, ‘the surrender of academic freedom is far more insidious than the attack on it’ (2007, p. 48).

Some further comments on the involvement of the fossil fuel industries in teaching and research are warranted.

Teaching

In the School of Engineering at the University of Queensland the sponsorships from fossil fuel companies are sometimes linked to teaching. The Xstrata Chair of Metallurgical Engineering, established with a \$1.5 million grant from Xstrata in 2005, is being ‘used to oversee and guide the implementation of a new Bachelor of Engineering double major in Chemical and Metallurgical Engineering’ (University of Queensland 2005a). Similarly, the \$2.5 million directed by the BMA alliance to sponsor two chairs in mining engineering and minerals processing contains funds to ‘improve’ the lecture series in coal processing (University of Queensland 2005b).

The SMI is also engaged in teaching. It offers its students short courses, tailored (private non-award) short courses and coursework degrees ‘delivered in online flexible mode’. And as its website states, ‘the Institute is participating in a national minerals undergraduate education initiative through the Minerals Council of Australia’ (SMI 2006b). This ‘flexible’ array of courses is also on offer at the six research centres. For example, the Minerals Industry Safety and Health Centre’s (MISHC) postgraduate courses ‘are all offered in flexible delivery mode’ and some courses ‘combine a 4-week self-paced module with a 5-day intensive workshop’ (MISHC 2006). At the Centre for Mined Land Rehabilitation (CMLR) which is also part of the SMI, ‘each program component has been designed and developed in consultation with industry’. As the CMLR website states, the centre ‘has forged the strongest possible links with industry’ (CMLR 2006).

The sponsorship of university chairs to oversee the development of degree structures and course content, coupled with short courses specially tailored to industry, suggests fossil fuel companies have considerable influence over teaching. It also reinforces concerns that lecturers could refrain from making remarks that could be construed as critical of individual mining companies or practices of the industry as a whole.

Research

Although the SMI and the associated centres are engaged in teaching, it appears that research is their main purpose. The SMI website states that, '[t]he business of SMI is research for, and in the closest possible association with, the minerals industry' (SMI 2006a). Likewise, the WH Bryan Mining Geology Research Centre (BRC) claims that it 'provides high quality research, technical innovation and technology transfer to the mining industry' (BRC 2006). In 2004, BRC director Professor Roussos Dimitrakopoulos, said that their major sponsors including BHP Billiton, Rio Tinto and Xstrata 'influenced' their research directions by 'articulating their visions' (BRC 2004, p. 5). The JKMRC advertises 'the widespread use of its research outcomes by industry' and it outlines research projects that were developed 'in direct response to industry needs' (JKMRC 2006). In 1996, Dr Steve Morrell, a researcher at the centre claimed that:

[p]art of the attraction for the companies is that they have a very big say on how we conduct our research. The project team meets with company representatives every six months to review progress and discuss areas where more research is needed to maximise efficiency (University of Queensland 1996).

Most academics are primarily interested in securing research funding from government or industry. While some academics receive industry funding for teaching through academic posts, it is far more attractive to academics, especially those without such a post, to attract funding to assist and support their research. As discussed, the fossil fuel industry associations and individual companies are involved in funding research at these centres. For example, along with other research providers the SMI and the JKMRC are currently participating in a \$5 million AMIRA-funded project into mineral and coal processing. The JKMRC is also involved in a \$400,000 AMIRA-funded project assessing the performance of high pressure grinding rolls (AMIRA International 2006c). Other centres like the CSRM and the BRC also participate in ACARP and other coal funded projects to assess the performance of coal mines and to improve their operations (CSRM 2006; BRC 2004).

The concern that fossil fuel involvement could mean that short-term applied research for industry crowds out long term basic research has been noted by one of the centre directors. David Brereton, director of the CSRM, claims that one of the benefits of PhD students is that 'they are able to undertake long term, basic research and offer a critical perspective, thereby providing a valuable counterbalance to the more applied work that we do with industry' (CSRM 2004, p. 4). Indeed a cross section of the descriptions of research projects undertaken at the centres that comprise the SMI suggests that the majority are applied projects.⁸

⁸ See for example, SMI (2003), SMI (2004), BRC (2004), CSRM (2004) and CSRM (2005).

In 2004, Grant Thorne, Managing Director of Rio Tinto, remarked in a speech at the University of Queensland that:

Integral in the development of successful partnership for Rio Tinto Coal Australia is finding an organisation which shares our goals and our objectives – a good “fit” if you like (Thorne 2004).

Reflecting on the involvement of the fossil fuel industries at the University of Queensland, it would seem that many in the industry share this belief, as evident in their sponsorship of university chairs, academics and research projects.

3.3 The University of Western Australia

Industry links

A number of the leaders of Australian universities have close ties to the fossil fuel industries. The Chancellor of the University of Western Australia is arguably one of Australia’s highest profile directors of a fossil fuel company. Michael Chaney, currently President of the Business Council of Australia and a director of Woodside Petroleum, one of Australia’s largest oil and gas companies, was appointed in 2006 (UWA 2006b). Chaney was previously the Chief Executive Officer of another fossil fuel company, Wesfarmers. In 2002, while still at the helm of Wesfarmers, the University of Western Australia conferred upon him the honorary degree of Doctor of Laws (UWA 2002). In addition, Chaney is expected to be made Chairman of Woodside in 2007 (Woodside 2006).

Michael Chaney is not alone at the University of Western Australia. David Griffiths is a director of ARC Energy, an oil and gas company, and member of the university senate (ARC Energy Limited 2005). Most of the board members of the University’s Business School are also connected to major fossil fuel companies. The Deputy Chair of the board is Tony Howarth, the Chairman of Alinta. Also on the board are: John Akehurst, director of Alinta and former managing director of Woodside; Don Voelte, Managing Director and Chief Executive Officer of Woodside; and Richard Goyder, Managing Director of Wesfarmers (UWA 2006c; UWA 2006d; PESA 2006). In announcing the appointments of Don Voelte and Bob Browning (Chief Executive Officer of Alinta), the Vice-Chancellor of the University of Western Australia stated that ‘they will complement the current board member’s strengths, both bringing considerable business experience from the resource and energy sectors’ (UWA 2006d).

The Faculty of Engineering, Computing and Mathematics houses the disciplines that relate to the fossil fuel industries. Its approach to industry is set out on its website.

For the Faculty of Engineering, Computing and Mathematics, industry partnership is about working with industry to ensure that our course offerings, the quality of our graduates and the direction of our research are relevant to the needs of industry (UWA 2006e).

The faculty is the location for the School of Oil and Gas Engineering.⁹ Established as a school with the assistance of Woodside in 2000 with a \$1 million grant, the head of the school, Professor Robert Hurle is the North West Shelf Venture Chair of Oil and Gas Engineering which was established with a \$660,000 grant from Woodside. Woodside also contributed \$1.16 million to help fund the Chair of Oil and Gas Engineering held by Professor Beverly Reynolds (Centre for Oil and Gas Engineering 2001, p. 24). The mission of the school is:

[t]o be the focal point for high quality education, training and research development for the Oil and Gas Industry in Australia and the Region (Centre for Oil and Gas Engineering 2001, p. 1).

Teaching

The involvement of Woodside and other fossil fuel companies in the School of Oil and Gas Engineering carries over into teaching and research. The School offers a range of undergraduate and postgraduate programs. In the words of the School's website:

[t]he suite of undergraduate and postgraduate degrees offered by the School for Oil & Gas Engineering is multi-disciplinary and flexible in nature, with multiple entry and exit points.

The School also offers:

[a] wide range of general and company specific short courses... . Each module within the Master of Oil and Gas Engineering program is available as a stand alone short course. These modules cover a range of technical and commercial subjects. In addition, the School regularly delivers tailored short courses for a number of organisations (UWA 2006f).

One of the degrees on offer is the Bachelor of Engineering (Oil and Gas Engineering). According to David Agostini, Adjunct Professor at the School, its introduction reflected industry support for the teaching programs and the school more generally (Centre for Oil and Gas Engineering 2001, p. 4). Moreover, some 70 industry representatives have been involved in the development, coordination and teaching of oil and gas units at an estimated cost of \$600,000 to industry per year (School of Oil and Gas Engineering 2005, p. 9). Further, Woodside has made available more than \$450,000 to fund undergraduate scholarships in the oil and gas engineering units of the Bachelor of Engineering. Other companies, including Wesfarmers, have contributed scholarships and prizes (Centre for Oil and Gas Engineering 2001; School of Oil and Gas Engineering 2005).

The School of Oil and Gas Engineering also receives funding from the fossil fuel industries through the Futures Foundation. Established with funds from Woodside and Clough Engineering, the foundation helps to cultivate industry sponsorship to support the school. In 2002, corporate members made five-year sponsorship pledges of

⁹ The school was previously known as the Centre for Oil and Gas Engineering before a restructuring process took place during 2000 and 2001. It is currently in the process of merging with School of Mechanical Engineering.

between \$10,000 and \$80,000 per year. These members, which include Woodside and Chevron Texaco, are able to participate in teaching, research and graduate recruitment programs (UWA 2006g). The risk with fossil fuel participation in teaching programs is the extent to which it could compromise the independence of the course approval process by the relevant academic board or committee. Minutes from a meeting of the advisory board in engineering in 2004 noted that the Futures Foundation ‘had approved the rationale for the restructure’ of the undergraduate program at the school (UWA 2004).

Research

The fossil fuel industries are also engaged with the University of Western Australia in various research projects. For example, the School of Oil and Gas Engineering has received more than \$1 million in individual research grants from government and industry, including several large grants from Woodside (School of Oil and Gas Engineering 2005, p. 27). The university also hosts the Centre for Exploration Targeting (CET), which is a partnership between the University, the Government of Western Australia, Curtin University and the minerals exploration industry. Opened in 2006, the centre is an ‘applied research centre’ focussed on minerals exploration. The CET’s board and the external advisory group are both dominated by industry representatives and both the chairs are from industry. The industry MSc coursework coordinator, Dr Warwick Brown, is an MCA Lecturer, a position part-funded by MTEC (MTEC 2006; UWA 2006h).

In addition, the university encourages commercial involvement in research through the Cooperative Education for Enterprise Development (CEED) program. The CEED is designed to link students with the research and development of ‘progressive organisations’. Its website states that while ‘R&D can be expensive this is not the case with CEED’ because costs are shared with the university. It also claims that ‘industry wins because internal research is expensive’ and the university ‘wins because we need the industry links’ (UWA 2006i).

In all, the evidence suggests that there is a danger of capture at the University of Western Australia. The links between the fossil fuel industries and the university’s governance coupled with the depth of involvement in teaching and research, particularly in the School of Oil and Gas Engineering, illustrates the types of relationships that now exist between Australian universities and fossil fuel companies. This point is evident in the School of Oil and Gas Engineering’s Triennial Report, which describes the role of Woodside.

As well as taking a place on University advisory boards and committees, many Woodside personnel have participated in the Centre’s programs of teaching and research since 1995. This includes the presentation of specialist lectures, co-supervision of students and projects, participation in industry-based staff development, sponsorship of research projects, and individual enrolments in postgraduate study (Centre for Oil and Gas Engineering 2001, p. 30).

As at the University of Queensland, there is a danger that short-term commercially orientated research is driving out longer-term basic research with a greater public benefit. There are also good grounds for believing that university teachers would be

reluctant to criticise the practices of individual companies or the fossil fuel industries no matter how soundly based those criticisms may be.

3.4 Curtin University of Technology

Industry links

As at the University of Western Australia, the involvement of fossil fuel industries at Curtin University is largely through oil and gas companies and begins with the Chancellor, Gordon Martin. Appointed in 2006, he is the Chairman of Coogee Resources, an oil and gas company based in Perth.

The involvement of these companies is evident in the Department of Petroleum Engineering. Founded in 1999, the department's emphasis is 'very much on developing personnel with the necessary skills to add bottom line value in industry as quickly as possible' (Curtin University of Technology 2006b). The head of the department, Associate Professor Geoff Weir, is a former employee of Shell International and was Principal Reservoir Engineer at Woodside before moving to the department. Similarly, the former head, Professor R. T. Rajeswaran, was Chief Petroleum Engineer at Mobil before setting up the Department of Petroleum Engineering in 1999 (Curtin University of Technology 2006b). In fact, almost all of the academic staff at the department are former employees of industry.

Beyond the department level, Curtin University hosts a number of research centres and other joint ventures that engage with fossil fuel companies. Possibly the largest, as measured by industry funding, is the Western Australian Energy Research Alliance (WA:ERA). The alliance is a joint venture between Curtin University, the University of Western Australia and the CSIRO, and is heavily underwritten by the Western Australian Government, Woodside and Chevron Texaco. In 2004, Woodside signed a five year agreement with WA:ERA known as Research to Discover, Develop and Deploy (R2D3), which is worth up to \$30 million. In the same year, the joint venture was awarded a Major Research Facilities program grant of \$20 million by the Western Australian State Government.¹⁰ In 2005, Chevron Texaco also committed to invest \$5 million per year in the venture (WA:ERA 2006; WA:ERA 2005).

WA:ERA comprises a small board and an industry advisory group. Although the board is not dominated by industry personnel, two of the five members have links to Woodside, including the chairman, Adjunct Professor David Agostini who is the Woodside representative on the Futures Foundation. The other member, Professor Beverly Reynolds, listed on the joint venture's website as a scientist with the CSIRO, is also the Woodside Chair in Oil and Gas Engineering at the School of Oil and Gas Engineering at the University of Western Australia (WA:ERA 2006; School of Oil and Gas Engineering 2001). Moreover, the structure of WA:ERA is such that the board is accompanied by an industry advisory group dominated by representatives from oil and gas companies, including the chairman, who is from Woodside. Other members include the Managing Director of Chevron Australia and the President of Australia Asia Gas, BHP Billiton Petroleum (WA:ERA 2006).

¹⁰ Personal communication with Ian Finnie, Chief Executive of WA:ERA, 15 May 2007.

Industry involvement with WA:ERA and Curtin looks set to expand in 2007. Chevron Texaco recently announced that it will open a new technology centre in Perth, which will capitalise on its existing involvement with WA:ERA. With the number of staff at the new centre estimated at close to 100, the influence of Chevron Texaco at Curtin and at the University of Western Australia is expected to grow (Beyer 2006).

Another prominent alliance at Curtin is the Woodside Hydrocarbon Research Facility. Since 2000, the facility has received \$600,000 per year in funding from Woodside, which has been guaranteed to 2008. This includes support for a Chair of Hydrocarbon Research held by Professor Robert Amin (Curtin University of Technology 2005a). Amin is also an advisor to the company on Iraq (Chessel 2005). In fact, the association is so close that the company has described him as a representative of Woodside (ABC 2005c).

Curtin University also hosts the Centre for Excellence in Applied Organic Chemistry (CAOG) and the Natural Gas Centre. CAOG, a collaborative partnership between Curtin and the University of Western Australia, is supported by Woodside. Its research 'is strongly focussed on identifying and addressing the requirements of its industry supporters' (Curtin University of Technology 2006c). Similarly, the Natural Gas Centre is linked to the Woodside Hydrocarbon Research Facility and is focussed on research that supports the gas industry, especially by delivering access to offshore reserves (Curtin University of Technology 2006d).

Despite the concentration of oil and gas involvement at Curtin University there are some links to the minerals sector of the fossil fuel industries. Curtin hosts the Centre of Excellence for Sustainable Mine Lakes and the Centre for Fuels and Energy. The former was established in 2003 with \$1.7 million over four years from industry and the university to be matched by the Western Australian Government. In essence, the centre undertakes research into polluted mine lakes. Involving Curtin, the University of Western Australia, Edith Cowan University and Murdoch University, the centre receives considerable financial support from Wesfarmers, Griffin Coal Mining Company and ACARP (Curtin University of Technology 2006e). The Centre for Fuels and Energy is much the same. Its head Professor Dong-ke Zhang has a long association with the coal industry including Wesfarmers, Griffin Coal and BHP Billiton. Professor Zhang also works as a senior project advisor to BHP Billiton (Curtin University of Technology 2004a). The Centre, like many of those at Curtin, has a group of industry partners that includes the above companies as well as the Australian Gas Association (Curtin University of Technology 2006f).

Finally, Curtin University hosts the Centre of Excellence in Cleaner Production which has received significant support from the fossil fuel industries. Both the Centre itself and the Chair of Cleaner Production are funded by Wesfarmers and several of the research projects undertaken have also been for Wesfarmers (Wesfarmers Limited 2005, p. 82; Wesfarmers Limited 2004, p. 66). The head of the centre, Dr Michele John, has worked with multi-national mining and industrial companies.¹¹ The former head of the centre until late 2006, Dr Tony Bagshaw, was a former research co-ordinator at AMIRA International, a research association for the minerals industry (AMIRA International 2006b). The centre's website is heavily focussed on the

¹¹ Personal communication with Michele John, 10 May 2007.

interests of business. For example, it contains an on-line manual for businesses to reduce their costs and impacts of production. The manual was developed in consultation with the Western Australian Chamber of Commerce and Industry (Curtin University of Technology 2006g).

The concern with the research centres at Curtin University is that the structure of some centres could produce conflicts of interest, particularly where industry representatives dominate the boards and where academic posts are sponsored by fossil fuel companies. In 2005, Curtin University faced strong criticism in the press after it was revealed that the university made a \$20,000 donation to the Kurdistan Regional Government in Iraq on behalf of Woodside. According to a Woodside spokesperson on the ABC's PM program, Woodside put a sum of money into the Woodside Hydrocarbon Research Facility and then 'instructed the Professor to get the cash out' and 'give it to Iraq' (ABC 2005c). The Professor was Robert Amin, Chair of the research facility whose salary is paid for by the oil company and who assists the company with its oil interests in Iraq (ABC 2005c). The particular concern here is that Woodside would appear to be using Curtin University and Robert Amin to further its economic interests in Iraq, compromising the independence of both.

This was not the first time such conflicts had arisen at Curtin University in its relationships with industry. In October 2005, the Alcoa Alumina plant at Yarloop in Western Australia received critical media coverage after the ABC's *Four Corners* program aired complaints by local residents alleging that pollution from the plant was causing health problems (ABC 2005b). Following the program, Professor of Health Economics at Curtin University, Gavin Mooney, raised concerns that while Alcoa was under public scrutiny for the pollution coming from its alumina plant at Yarloop it was also sponsoring the Alcoa Research Centre For Stronger Communities at Curtin University. According to Curtin's 2005 annual report Alcoa has allocated \$1.5 million to the centre 'to support and foster sustainability across the globe' (Curtin University of Technology 2006, p. 6). Speaking about the Alcoa plant on Perth radio Professor Mooney said:

Now, if it is the case that a community, or its representatives want to get some advice or get some evaluation done, an appraisal done, or something or other, it's very important that they know that they can go to an independent source for that, such as a university.

My worry, and the worry of a lot of academics at the present time, is that by getting into bed with the corporates, that independence may be, in a sense, challenged. And, indeed, there may be a perception that it be challenged (6PR 2005).

After making these comments the university administration expressed its unhappiness that Gavin Mooney had spoken publicly about the issue.¹²

Professor Mooney claims that these types of conflicts can be exacerbated if ethical guidelines are not strong enough. He argues that instead of taking pre-emptive action,

¹² Personal communication with Gavin Mooney, 2 September 2006.

universities ‘manage’ conflicts to avoid bad publicity and embarrassment that could affect future sponsorship.¹³

Teaching

The Department of Petroleum Engineering and all of the centres discussed at Curtin University engage in both teaching and research. According to the head of the department, Associate Professor Geoff Weir, teaching is the ‘bread and butter’ of the department. It has about 40 masters by coursework students, 20 of whom are sponsored by the National Iranian Oil Company.¹⁴ The department offers ‘tailor made courses’ to ‘meet the needs of all personnel involved in the oil and gas industry’ and ‘if demand is sufficient, mini-courses will be offered’ (Curtin University of Technology 2006a). In addition, most of the major fossil fuel companies provide scholarships. Chevron Texaco offers two scholarships per year worth \$16,500 each, as does Woodside. Tap Oil offers one per year at the same value and BHP Billiton offers one scholarship per year worth \$15,000 (Curtin University of Technology 2006a). Nevertheless, there has been a general reluctance from local industry to sponsor staff positions in the Department.¹⁵ This could be because traditionally departments focus on teaching while centres concentrate on research.

The Australian Centre for Natural Gas Management at Curtin is much the same. It offers ‘training tailored to client needs’ and ‘training delivered by university and private sector experts’ (Curtin University of Technology 2006h). WA:ERA also offers education and training programs ‘based on a customer’s specific requirements’ (WA:ERA 2006). Further, in 2004 the university appointed Gerry Flanagan, Head of Faculty at the Shell Learning Centre in the Netherlands, as an Adjunct Teaching Fellow. He helped to develop a Masters of Technology (Petroleum Technology) for Shell staff which is taught in collaboration with Curtin University (Curtin University of Technology 2004b).

Reflecting on teaching at Curtin University there is some evidence to indicate that courses are carefully tailored to meet the demands of industry. However, it is not clear to what degree this could be restricting the capacity of academics to freely structure degree programs, define the curriculum or teach critical propositions.

Research

Research also forms a vital part of the fossil fuel industries’ involvement at Curtin University. The Department of Petroleum Engineering’s website states that researchers ‘can be focussed into specialised teams to tackle specific problems of relevance to the Petroleum industry’ and it is ‘planned that at least 70 per cent of the research funding will come directly from the oil and gas industry’ (Curtin University of Technology 2006a). One of the main research partnerships for the department is with the Cooperative Research Centre for Greenhouse Gas Technologies and it has also received some support from WA:ERA. This research is focussed on geo-sequestration and provides an important stream of revenue for the department.¹⁶

¹³ Personal communication with Gavin Mooney, 2 September 2006.

¹⁴ Personal communication with Geoff Weir, 14 May 2007.

¹⁵ Personal communication with Geoff Weir, 14 May 2007.

¹⁶ Personal communication with Geoff Weir, 14 May 2007.

Research at the Centre for Applied Organic Geochemistry is also ‘strongly focussed on identifying and addressing the requirements of its industry sponsors’ (Curtin University of Technology 2006b). So too is research at WA:ERA, which ‘provides Woodside with a specialist capability targeted at creating tailored research programs and making sure that the results are fully integrated as a value-added activity into the business’ (WA:ERA 2006). In addition, Chevron Texaco which directs \$5 million per year to WA:ERA expects that research projects ‘are relevant to oil and gas exploration development’ (WA:ERA 2006).

The concern is that the network of relationships with fossil fuel companies could see them gain an inappropriate level of influence over research, with an excessive emphasis on short-term applied research. Indeed Associate Professor Geoff Weir, head of the Department of Petroleum Engineering, has argued that:

[a] key challenge is trying to tease out precisely which research problems the industry would like tackling. Only when this is agreed is there any chance of a research proposal being supported.¹⁷

Moreover, Dr Kim Klaka, director of the Centre for Marine Science and Technology at Curtin University expressed concern about the growing need to find external sources of income:

[i]t sends us down the path of very applied research (not a bad thing) and very short-term research (bad). It also means that nobody is doing the basic research necessary to stay ahead in the applied research game.¹⁸

¹⁷ Personal communication with Geoff Weir, 14 May 2007.

¹⁸ Personal communication with Kim Klaka, 4 August 2006.

4. Conclusions

There was a time, and probably not that long ago when you could find people who were willing to pay for a research project to be done – ethically and properly, not telling you what answer to get and the rest of it.

Professor Ian Chubb, Vice-Chancellor of the Australian National University (cited in SEWRSBEC 2001, p. 70)

In response to Federal Government policies promoting the commercialisation of higher education, Australian universities have been increasingly required to seek funding from private sources. By reducing public funding and imposing various requirements and constraints the Federal Government has sought to cement the ‘enterprise’ culture in universities.

In this environment the fossil fuel industries have become steadily more involved in universities. Fossil fuel companies and industry organisations sponsor schools, centres, professorships, academic posts and numerous research projects. From the Xstrata Chair of Metallurgical Engineering at the University of Queensland to the Woodside Hydrocarbon Research Facility at Curtin University, the fossil fuel industries are now heavily involved in Australian universities, especially the three discussed in this paper.

While those in favour of greater commercialisation of universities argue that universities must embrace this new environment to attract private funding, the relationships between the fossil fuel industries and universities raise concerns that universities are becoming captured and that sponsoring corporations have an inappropriate level of influence over teaching and research. In the case of teaching the concern is that industry needs for flexible and industry-relevant degrees and courses will lead to curriculums increasingly tailored to the short-term needs of industry, which may narrow the education received by students. In the case of research, the primary concern is that short-term applied research in the private interest could crowd out basic research in the public interest. Basic research provides the foundation for scientific advancement and training and acts as the body of scientific knowledge that underpins more applied research.

There is a significant risk that university lecturers and researchers will be constrained in fulfilling their duties as independent experts. One of the roles of university lecturers and researchers in mining and engineering schools is to use their expertise to assess and comment on the practices of industry. Academic experts may be best placed to advise the public and government on these issues. However, if these academics or their universities are employed by, or have a financial association with, fossil fuel companies then they may well feel constrained or gagged. In the same way, lecturers may refrain from making critical remarks to their students about the practices of companies or industries with which they or their university have a financial association. The evidence presented in this paper indicates that there are grounds for concern as commercial interests are intertwined in universities.

The potential for universities to be captured by fossil fuel interests and for academic freedom to be compromised means it is important to have in place structures that keep the activities of universities and their staff transparent and accountable. Such structures include university codes of conduct, ethical guidelines and disclosure of public and private funding sources. This would ensure that the unique place that universities have in society as a trusted source of independent expert knowledge would remain. However, the 2001 Senate Inquiry concluded that this is not always the case.

The Annual Reports of some universities are masterpieces in obfuscation and State Governments should be demanding more transparency (SEWRSBEC 2001, p. 110).

In fact, in researching this paper we experienced great difficulties in acquiring information about the manifold links between universities and fossil fuel companies. There is no directory or registry of industry involvement in universities, nor systematic publication in university annual reports of ties to industry, including the sponsorship of academic posts, research and infrastructure. Often more information is disclosed in reports emanating from the fossil fuel industries than in the reports of the universities.

The establishment of a registry of interests would improve transparency and reduce the danger of university capture. In the same way that Federal Members of Parliament are required to disclose a range of pecuniary interests in the Register of Members' Interests, universities should disclose relevant interests and contracts with industry. In addition, universities need to have in place clear ethical guidelines to insulate universities and their staff from the commercial pressures and conflicts that can arise from relationships with industry. This could include a requirement that all possible conflicts of interest are disclosed.

If universities are to remain public institutions serving the public interest, if they are to remain the wellspring of future knowledge and if they are to continue to provide a unique place for the dispassionate pursuit of the truth without fear or favour for the betterment of society, then academic freedom must be preserved. Together a registry of interests and strong ethical guidelines would help to ensure this occurs.

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