#### The university, government, and natural gas corporations are intertwined—in doing so they have infused pedagogy with neoliberalism

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Ira Glass Today on our radio program, what happened when the big institutions of a state, the universities, industry, government, all joined forces to push for natural gas. That's what happened in Pennsylvania. Other states have been far more cautious. The people involved called the discovery of all this gas in the United States a game changer. But the only reason that any of this matters at all is that in the last decade, technology was developed that can extract the gas from these rocks. The process is called, the full name-- get ready-- horizontal high-volume slick water hydraulic fracturing, or fracking. You may have heard of fracking, which basically means they drill a hole into the earth, they pump a huge volume of water, millions of gallons, mixed with sand and chemicals down into that well into the rock. It pushes out the gas that is trapped in the shale, which then surges back up the well, and lots of that chemically treated water comes back up too, now mixed with other stuff that's been a mile underground for eons, like huge amounts of salt. How to handle that waste water is actually one of the tricky things about all this. From WBEZ Chicago, it's This American Life distributed by Public Radio International. I'm Ira Glass. Today on our program, what happens to a state when it is hit with a game changer, like natural gas has hit Pennsylvania. One of our producers, Sarah Koenig, lives in Pennsylvania and has been looking into this for months. Our show in two acts, the first in the state universities, the second in a small town. Let's begin at the universities, which people, of course, turn to for objective, neutral, unbiased analysis. That's Act One of our show, You've Got Shale. Here's Sarah. Act One. You've Got Shale. Sarah Koenig The story of that second guy's calculation, Dan Volz's calculation, at first sounds an awful lot like Terry Engelder's. A couple of years after drilling had started in Pennsylvania, he also figured out something no one else had bothered to calculate, how much toxic crap-- chemicals, and other pollution from gas drilling-- was getting into water supplies. Treatment plants were taking in the waste, supposedly cleaning it up, and then releasing it into bodies of water, like the Monongahela River in Pittsburgh, which actually runs right in back of Volz's office building. Conrad (SUBJECT) CONRAD "DAN" VOLZ: I essentially did a calculation looking at these 13 or so wastewater facilities. Every day, if these wastewater treatment plants were accepting their total allotment of oil and gas waste, they'd be putting something on the order of 800,000 pounds of solids into the river a day. And this would include tons and tons of things, like strontium and bromide and barium. Sarah Koenig High levels of strontium and bromide can cause cancer and birth defects. Barium is a heavy metal, which can be poisonous if you ingest enough of it. Conrad (SUBJECT) CONRAD "DAN" VOLZ: That's just like backing up a dump truck full of powdered barium and having about 16 of them just dump that right into the Monongahela River. There's no difference. I shocked myself. I said to myself, oh, this can't be. And I went to my wife, actually, and I said, you had better look at my calculations for me. Sarah Koenig Is she also a scientist? Conrad (SUBJECT) CONRAD "DAN" VOLZ: She's a physician, but she's a better mathematician than I am. So she looked at it and she said, well, Dan, I think your calculations are correct. Sarah Koenig So Volz told the outside world about his calculation, the 800,000 pounds, talked to community groups, gave seminars on it, told the Pennsylvania Department of Environmental Protection, put it on his center's website. And of course, he told his boss. Conrad (SUBJECT) CONRAD "DAN" VOLZ: I did bring this to the dean's attention about this time last year and gave him a presentation on it. And he is concerned, and he was concerned. But deans and administrators and department heads are busy people, looking at lots of different things, and-- Sarah Koenig OK, so we'll come back to Volz in a bit, but compare this reaction that Dan Volz gets from the higher ups at Pitt to the one that the first guy, Terry Engelder, gets back at Penn State when he tells his dean about his calculation. Here's Engelder. Terry Engelder And the dean's reaction, Dean Easterling's reaction was immediately, boy, the president of the university needs to know about this. Sarah Koenig So the dean tells the provost and the president, and within 24 hours, word comes down from the president's office that they'd like Engelder to sit on this discovery, not tell anyone for about a month. The president wants to announce it at the next trustees meeting. A discovery like this helps Penn State's president with one of the most important parts of his job, which is to be constantly reminding lawmakers and donors why they should keep supporting the university. They can say, see, your investment in us does pay off. For every dollar you invest, you'll get back $10, or $100, whatever the number is. Terry Engelder Well, the upcoming board of trustees meeting was the 17th of January. Sarah Koenig So that same day, the 17th of January, 2008, Penn State issued a press release on the Marcellus. He quoted Engelder as saying, "the discovery could be worth $1 trillion." With that, Penn State positioned itself as an early booster of gas drilling in the state. Now, I want to be clear here that Penn State isn't monolithic, and that there are other people at the university who are doing Marcellus work, on its effects on well water and songbirds, on the chemicals in frack water, on how industry money is being spread around, on how communities are being affected. But in the early days of this gas boom in Pennsylvania, it's fair to say the university quickly got a reputation of not really questioning whether this whole venture was necessarily a good idea. Myron Arnowitt runs an environmental group in Pennsylvania called Clean Water Action, and he's gone to dozens of panels around the state talking to residents about gas drilling. He said the panels usually had someone representing the gas industry, someone from government, and often, someone from Penn State. Myron Arnowitt Very often on these panels, the industry side will speak and say, there's never been a problem with gas drilling ever. No one has anything to worry about. And we'll get up and say, you know, here all the problems that can happen. Here are some things that have happened. This is why we're worried about it. And then the guy from Penn State will get up and say, you can make a lot of money off of gas drilling. Pennsylvania is in an economic wonderland because there's all this drilling that can happen in our state. And then someone from the audience will ask the Penn State person, who they kind of thought was a more, at least, impartial, or even knowing something about the environment, will say, well, what about some of the environmental risks? And the Penn state person-- and I've been in multiple times where this has happened. The Penn State person would say, you know, I don't really know a lot about that. You should ask Clean Water Action. And it was just like a bizarre moment, because I think people were obviously asking them because they wanted someone like an institution, like Penn State, to speak to what the environmental risks might be. And they just wouldn't do it. Sarah Koenig I heard this over and over again from all kinds of people, that they don't trust Penn State on this issue. A researcher doing field surveys in rural towns about the gas industry told me it was sometimes hard to get people to talk or answer questions once they found out the research was being conducted by Penn State. Another scientist looking at water quality told me when he does public presentations around the state, he sometimes gets booed and heckled and yelled at. He's had a finger poked at his chest by people who assume that, because he's from Penn State, he's in industry's pocket. Besides Engelder's announcement, the other piece of Penn State research that got a lot of attention was an economics report put out by the College of Earth and Mineral Sciences in 2009. It concluded that gas production could be generating $13.5 billion in value added, and almost 175,000 jobs by 2020. Later that was revised upward to 212,000 jobs, vastly higher than what the State Department of Labor and Industry was estimating. Furthermore, the study said, taxing natural gas production would be a bad idea. Keep in mind, whether to impose a tax was and is a big debate in Pennsylvania. It's the only state that doesn't tax gas production, and companies would like to keep it that way. So, no, don't tax it, the Penn State report said. And not only that, don't regulate it either. Quote, "proposals to regulate hydraulic fracturing under the federal Safe Drinking Water Act pose yet another serious threat to the development of the Marcellus shale. Industry couldn't have paid for better advertising. And it turned out when an activist made a stink about this, industry had paid for it. A group of gas and energy companies had sponsored the thing, had asked Penn State to create it using data the industry provided. But the numbers did as numbers do, they took on a life of their own, as evidence in the case for drilling. Tom Ridge Literally thousands and thousands of jobs out there. I've seen some estimates that go as high as 200,000 jobs over the next 10 years. So obviously, there's a lot of potential there. Sarah Koenig That's former Pennsylvania Governor Tom Ridge, who's now working for the industry's Marcellus Shale Coalition, talking to small business owners in April. And here's Senator James Inhofe of Oklahoma at a committee hearing, citing Penn State, to support the idea that there should be no federal regulation of fracking. James Inhofe I'd also like to submit for the record two studies from Penn State University. The studies found that Marcellus activity-- I'm quoting now, this is Penn State University. "By 2020, employment would expand by 200,000 jobs. Additionally, Penn State University-- I'm still quoting-- also concluded that federal regulation was a serious threat to Marcellus development." Sarah Koenig People critical of gas drilling have called Terry Engelder an industry shill. And while it is true that his Marcellus talking points line up exactly with those of industry, I got the impression that Engelder sincerely believes these talking points. He believes industry wants to do shale drilling right, that it's figuring out how to minimize the environmental and health hazards. And his job, his responsibility, in fact, is to help. He believes he's had an opportunity only a handful of scientists get, to influence the course of history. He compared himself to Louis Pasteur and Jonas Salk. And so, back in 2007, for instance, when he was invited by a major investment bank to participate in a conference call for about 130 investors looking to put money into drilling in the Marcellus Shale, Engelder felt it was almost his duty to do so. Terry Engelder In a very real sense, this was my one opportunity to repay the faith that the federal government has had in me and the industry has had in me. Sarah Koenig I couldn't get tape from the call, but I did get a transcript. During the presentation, Engelder doesn't just talk up the Marcellus Shale. "I have to make a bit of a sales pitch for Penn State," he says. He repeatedly points out the quote, "symbiosis between the gas industry and Penn State," and asked them to invest in research at Penn State, quote, "The type of research that's necessary to answer some of these questions that are going to be so critical to the future of Marcellus development," the type of research that he, himself, will be doing. Since that call, Engelder has started a research project. 10 oil and gas companies are paying about $40,000 each so students can map the Appalachian Basin, showing companies where best to drill. Engelder also has a multimillion dollar project to help engineers figure out, among other things, how much pressure they need to frack wells. Penn State depends hugely on industry money, and not just on the oil and gas industry, on pharmaceutical companies, and on weapons manufacturers, and on the government. All major research universities do, not just Penn State. But Penn State's got one of the oldest and best gas and petroleum engineering schools in the country. Without industry money, the school might not survive. Flip through this year's awards banquet program for the Energy and Mineral Engineering students, and it's an industry roster. They're getting money from Chesapeake Energy, Consol Energy, Chevron, BP, ConocoPhillips, Marathon Oil. Some of these students will go on to work for these companies, and make lots of money, and give it back to Penn State, which is great for the university. But if you take a close look at how some of these donations work, you can see how entwined the university is, not just with the gas industry, but also with state government, and how all three of them are united on the topic of drilling. Take the biggest private donation in Penn State's history. In September, an oil and gas engineering alum named Terry Pegula gave $88 million to create a Division I ice hockey program. Pegula and his oil and gas company, East Resources, which, by the way, had the third highest number of gas well violations in the state between 2008 and 2010, were top donors to Pennsylvania's new republican Governor, Tom Corbett, who's a great friend to the gas industry. Corbett has said repeatedly he doesn't think gas production should be taxed. Tom Corbett The Marcellus is a resource, a source of potential wealth, the foundation of a new economy, not just something new to tax. Sarah Koenig That was Corbett's first budget address in March, when he also announced his new Marcellus Shale Commission, which will advise him on all matters of Marcellus development and regulation. Who sits on the commission? Terry Pegula, the ice hockey guy, plus 12 other business and industry representatives, four representatives from environmental groups, and one academic, Terry Engelder. And I was surprised how frank Engelder was with me about his role in the commission, how baldly political. He says he's there to push for one or two controversial topics, one of which is forced pooling. It's a policy that lets drillers extract gas from under your property, whether you like it or not. Engelder thinks it's a good idea, industry wants it. But Governor Corbett has opposed it. Terry Engelder I suspect that if the commission were to word their recommendations for pooling in a clever enough way, this would provide political cover for the governor himself. Now, the reason this is important that it come from me, for example, is that it has no credibility if someone from industry proposes this. In fact, as the commission has been criticized a great deal anyway for being top-heavy with industry types. Sarah Koenig There's nothing necessarily sinister about Penn State being friendly with industry, or taking industry money, unless that money skews research or tamps down dissent. The problem is, it can. A retired mining engineer from Penn State told me that faculty in his department knew very well that publicly criticizing the mining industry would be a risky career move. He knew of instances when companies got upset about something a faculty member said. And quote, "In some cases, their discomfort was expressed as, we're not going to support you any longer if this goes on." He said mining faculty at Penn State generally won't act as expert witnesses in lawsuits against mining companies for the same reason. Likewise, for petroleum and natural gas engineering faculty, he said, it would really take an earth-shattering event for them to feel free to take an active role in questioning industry motives, or any aspect of industry behavior. I have tape of this interview, but I agreed not to use it, because two days after we spoke, this professor, a nice man who's been retired for a decade, told me he had an anxiety attack, his first ever. He said he felt like a whistleblower and he couldn't go public. At the University of Pittsburgh, Dan Volz did go public. He works in public health; he felt it was his duty to go public. A couple of years ago, people started calling in to the Center for Healthy Environments & Communities where Volz worked. At first, three or four people a week, then as many as 25 a week. The callers lived near gas wells or compressor stations and they had health complaints. Conrad (SUBJECT) CONRAD "DAN" VOLZ: People complaining of bloody noses, of tingling in their distal portions of their fingers and their toes, of problems sometimes remembering things, getting headaches. And the same problems are being reported in Colorado, and Wyoming, and in Texas. And there's just no investigation on the part of the Environmental Protection Agency, or the state DEPs. So we started investigating this. Sarah Koenig Volz was pretty new to academia. He came to Pitt in 2004. But before that, he had his own successful consulting firm. He also worked for the government at OSHA and for industry and National Steel. What he was hearing in the phone calls reminded him of solvent exposures he'd investigated before in factories. It was worrisome. Also around this time, in late 2009, people started noticing that fish were dying in Dunkard Creek, which runs for 35 miles along the Pennsylvania-West Virginia border. Not just fish, but salamanders and shellfish. In fact, all the aquatic life had turned belly up. The cause was said to be golden algae. Conrad (SUBJECT) CONRAD "DAN" VOLZ: What was puzzling about this was that golden algae only grows in salty water. So where is all the salt coming from? So I got very interested after that in the issue of, what's adding all of this total dissolved solids to rivers like the Monongahela? Why are we seeing problems associated with high bromide levels in finished drinking water? What is going on here? Sarah Koenig So Volz and his students decided the next thing to do was physically test the water themselves. The lab results from one brine treatment facility, known as the Josephine Plant, were so alarming that Volz testified at a US Senate hearing about them. Conrad (SUBJECT) CONRAD "DAN" VOLZ: And we found that coming out of the effluent pipe of that plant was discharge of nine pollutants, essentially all in excess of nationally recognized human and or aquatic health standards. Sarah Koenig Meanwhile, people at Pitt were getting annoyed with Volz. He's not your typical academic. He doesn't soften things so industry can save face. And he wasn't just critical of the gas industry. At Pitt he had taken on coal mining pollution and toxic dumping by a plate glass manufacturer. Conrad (SUBJECT) CONRAD "DAN" VOLZ: So I have talked about many things that I was told, well, maybe you should moderate what you say a little bit and to kind of pull my punches and talk about things with words such as "potential," like potential public health problems, instead of public health problems. Sarah Koenig I can see why they might want him to do that. He can be a loud mouth when he's riled up. Like, when I asked him about methane leaks from gas operations, which some people, like Terry Engelder, say can just be plugged. Conrad (SUBJECT) CONRAD "DAN" VOLZ: Let's get a grip on what we're doing here. We're making the ground into Swiss cheese. And how often are we going to go back to these hundreds of thousands and millions of wells over the next 20 to 30 to 100 years to keep plugging them, to keep them plugged for the next generation, and then the next generation, and then the next generation? Do we have to plug it in-- Sarah Koenig I feel like you're yelling at me. Conrad (SUBJECT) CONRAD "DAN" VOLZ: I am yelling at you. So we have to plug this damn thing in perpetuity? Come on. Sarah Koenig Volz was also warning community groups about all the compressor stations and refineries that would inevitably follow the drilling in Pennsylvania, and about evidence of cancer clusters among people who live near these operations in Texas and Louisiana. He says he was specifically told not to talk about that, to cool it. Conrad (SUBJECT) CONRAD "DAN" VOLZ: I certainly have had conversations with researchers here who were direct with me and said, you know, you're going to ruin our chances to get funding from the industry. You've got to not talk about this anymore. We're not going to get any funding from the drillers, from Chesapeake, or Range Resources, or any of these companies. Sarah Koenig And these conversations were not like razzing you around the coffee maker, like people were actually coming to you seriously and saying--? Conrad (SUBJECT) CONRAD "DAN" VOLZ: These were department heads and these are people with power in the university. It was all administrators. Sarah Koenig Can you please--? Conrad (SUBJECT) CONRAD "DAN" VOLZ: No, you need to keep your mouth shut. You're on this team. Sarah Koenig The team includes 18 people on Pitt's board of trustees connected to the oil and gas industry, including the chairman of Marathon Oil, the CEO of Consol Energy, a director of Dominion Resources. When Volz got his results about pollution coming out of the Josephine Brine Treatment Plant, he was told not to release them until they were published in a peer reviewed journal, which can take months, or even years sometimes. He refused and handed the results over to the EPA. All this came to a head in April. Sarah Koenig How was it communicated to you that, don't be talking about compressors and pipeline and cancer clusters, and don't be handing out your Josephine Plant data to the EPA or to the public before it's peer reviewed? How is this communicated to you? Conrad (SUBJECT) CONRAD "DAN" VOLZ: Directly. What do you mean, how was it commun--? Sarah Koenig Did someone knock on your-- Conrad (SUBJECT) CONRAD "DAN" VOLZ: Don't do it. An email. Sarah Koenig It was an email? Conrad (SUBJECT) CONRAD "DAN" VOLZ: Yes. Sarah Koenig From? Conrad (SUBJECT) CONRAD "DAN" VOLZ: From the dean of the Graduate School of Public Health, that you've crossed a line to advocacy. You're now an advocate. You're not a scientist. As soon as I read that I quit immediately. I just said, I'm a 60-year-old man that's had a complete career in environment, and I don't need to work for this university. Sarah Koenig I spoke to Volz's dean, Dr. Donald Burke. He and Dan Volz like and respect each other. He told me the school's differences with Volz weren't political or financial, they were philosophical. They fundamentally disagreed about when it's OK to be an advocate and when it's not. Dr. Donald Burke Is advocacy in an academic institution appropriate? When there's a strong evidence base, the answer is, by all means. But if there's not a strong evidence base, then advocacy is probably not appropriate for a university. Sarah Koenig For Dr. Burke, lab results from the Josephine Plant isn't strong enough evidence, not like a peer reviewed study. Dr. Burke also said the research that Dan Volz and his students were doing would continue at Penn. Interestingly, just after Volz quit, the Pennsylvania DEP asked all drilling companies to stop bringing their waste to treatment facilities that couldn't handle them. Volz's work wasn't mentioned, but most people following this topic in Pennsylvania credit him in large part for making that happen. Sarah Koenig Do you know of other people, not even necessarily here at Pitt, but just at other universities who have run into this similar thing as you have? Maybe not to this degree, maybe they haven't been as outspoken, but who have sort of gotten the message from their institutions, like can you please dial it down? Conrad (SUBJECT) CONRAD "DAN" VOLZ: Have I heard of this? Sarah Koenig Yeah, or do you know? Conrad (SUBJECT) CONRAD "DAN" VOLZ: Yes, absolutely. Sure. Sarah Koenig You don't have to tell me who they are now, but can you--? Conrad (SUBJECT) CONRAD "DAN" VOLZ: I'm not going to ever tell you who they are. Sarah Koenig Oh, you're not? Because they won't talk to me? Conrad (SUBJECT) CONRAD "DAN" VOLZ: Again, turn that thing off. Sarah Koenig And they're not going to talk to me? Conrad (SUBJECT) CONRAD "DAN" VOLZ: They will not talk to you. I guarantee you they will not talk to you. I will not even give you their names. Sarah Koenig And why won't they talk to me? Conrad (SUBJECT) CONRAD "DAN" VOLZ: They won't talk to you because this is such a huge political question, and they risk their job, or their grant funding, or their career over this. That's why. Sarah Koenig New York's politics surrounding gas are different from Pennsylvania's. For starters, there's been a moratorium on drilling there. And so the politics within a university like Cornell at least, are different enough that a professor named Tony Ingraffea has been speaking out without any repercussions. Ingraffea's one of the people who helped invent fracking. He's a structural engineer and he's taken gas industry money in the past. He's friendly with both Dan Volz and Terry Engelder. He even wrote a paper with Engelder. But when he started seeing op-eds and industry spokesman saying how fracking was no big deal, how the chemicals it released into the environment were perfectly safe, he started giving talks about how that wasn't true. In May, he came to Penn State, Terry Engelder's turf, to deliver a talk that threw into question everything that Terry Engelder believes to be true about natural gas development. Penn States also the home of the Nittany Lions, and the first slide Ingraffea showed was a picture of an open-mouthed lion with a guy's head stuck inside. Tony Ingraffea And you're right, this is not the right kind of lion, but I couldn't find anywhere on the web a Nittany Lion to stick my head into. That's how I feel right now. So I hope over the next few minutes, I can overcome my anxieties and my knee knocking and fear that when I leave here I'm going to find all my tires slashed. Sarah Koenig Ingraffea recently co-authored a study that said all the hype about natural gas from shale being a clear alternative to coal or oil isn't really true. He questions the very idea that extracting natural gas from shale formations is good energy policy. Ingraffea says it's not. It's a sop, a temporary band-aid for our energy problems that's going to make some people very rich, but that will ultimately make global climate change worse, and put off, for decades, development of better sustainable energy solutions. Ingraffea and Engelder and Volz all believe that they're practicing good science, and that that good science has led them to advocate for very different policies. Each of them sees what he's doing as a moral obligation. The difference is, there's plenty of money around to do the science Engelder wants to do. It's harder to find the money to do the kind of science that Volz and Ingraffea want to do, to answer huge questions about what shale gas extraction can mean for human health and the environment. Here's Ingraffea. Tony Ingraffea There's so much inertia. Wrong word. So much momentum in the gas industry right now to develop shale resources, and there's so much bipartisan support in Washington for it to happen, and there's so little resistance to slow it down to ask these big questions that take a long time to answer. What are the cumulative environmental and health impacts of a large-scale development of 100,000 wells in a region? How do you get a handle on that? Sarah Koenig That research is harder to find, not just in Pennsylvania, but everywhere. Ira Glass Sarah Koenig. Coming up, there will be crud. That's in a minute, from Chicago Public Radio and Public Radio International, when our program continues.

#### Nowhere is this more apparent than at UCO, which purports to be a green campus, but is really just a factory for the gas industry

Washburn 2010 (Jennifer; Big Oil Goes to College; www.americanprogress.org/wp-content/uploads/issues/2010/10/pdf/big\_oil\_lf.pdf; kdf)

These investments in clean energy research by leading energy companies also appear to be part of the energy industry’s current campaign to project a more pro-environmental public image. Turn on the TV or open virtually any magazine and you’re likely to see an ad from a major oil, coal, gas, auto, agriculture, or other company touting its commitment to the research and development of clean-energy technologies: biofuels, “clean coal” technology, hydrogen fuel cells. Not infrequently, these “green ads” explicitly reference the industry’s multimillion-dollar alliances with U.S. universities, whose prestige and public trust are an added selling point (see box above). It’s clear that Big Oil and other large energy companies have ramped up their advertising budgets to project a pro-environmental business orientation.14 But if we crack open the industry’s annual reports, it is also clear that today’s climate and energy crises (and persistently high oil prices) haven’t had anywhere near the impact on energy industry R&D spending that the earlier oil price shocks of the 1970s once had. After rising sharply in the 1970s, energy industry spending (adjusted for inflation) on all types of R&D has plummeted, from an annual average of nearly $6.4 billion in the early 1980s to an annual average of roughly $1.7 billion at the start of the last decade15 (see graph). The annual reports of four of the largest oil companies— ExxonMobil, BP, Shell, and Chevron— between 2000 and 2007 (before the Great Recession began) do show some overall gains in R&D spending. But these R&D gains, which are overwhelmingly directed toward enhanced oil and gas recovery, not clean energy, remain truly marginal, particularly in light of the oil industry’s vast profit margins in recent years. In constant 2006 dollars, here’s what these company reports reveal: • ExxonMobil’s total R&D spending has remained essentially flat since 1993, with barely any increase. • Shell had the fastest growth in R&D expenditures over the past five years (out of the four companies); however, because Shell’s R&D outlays had dropped dramatically throughout the 1990s, actual gains were marginal. • BP continues to spend less on energy R&D than either ExxonMobil or Shell. Despite dubbing itself BP or “Beyond Petroleum” in 2000, BP’s aggregate spending on all energy R&D is still roughly the same as it was a decade ago, although the company’s pledge of $50 million per year over 10 years for the Energy Biosciences Institute will lift this total slightly. • Chevron’s aggregate spending on R&D remained extremely low and flat from 1999 through 2004. Since 2005, Chevron’s R&D outlays rose, but they still remain the lowest of the four.17 (see the graph above for details) It is clear, then, that industry spending on all forms of energy R&D (especially low-carbon energy R&D) remains chronically low. Nevertheless, the industry’s decision to shift more of its already limited R&D spending to U.S. universities is highly significant, and could have far-reaching consequences for the future direction of energy R&D efforts nationally. In large part, this is because the U.S. government commitment to energy R&D has remained persistently low for decades, so every dollar of private industry funding that comes into university labs is urgently needed. Consider that: From 1993 to 2006, U.S. government spending on all energy-related R&D (in real dollars) remained stuck at roughly $3 billion to $4 billion per year, averaging $3.6 billion per year over this period. This is 60 percent less than the $9 billion the U.S. government spent on energy R&D in 1979.19(see second graph on page 10) Over the same years, by contrast, real federal spending on defense R&D and health R&D averaged $58 billion and $22 billion per year, respectively.20(see graph above) Industry financing of university research is certainly legitimate. Academic-industry research collaborations have led to critical advancements in science and engineering and should be nurtured. Yet industry funding can also have a powerful distorting influence on the quality, topics, and credibility of academic research when it is not properly managed. Indeed, in recent years a large body of analytic and empirical research has shown that industry-funded studies in sectors ranging from pharmaceuticals to tobacco to food are associated with reported outcomes that strongly favor the corporate sponsor’s products and/or interests compared to studies funded by government and non-profit sources.23(see box on page 12)

#### The discourse of the gas industry makes sites of dissent less frequent, destroying the planet and limiting the chances of alternatives

Finewood and Stroup 2012 (Michael [Chatham University] and Laura [St. Michael’s College]; Fracking and the Neoliberalization of the Hydro-Social Cycle in Pennsylvania’s Marcellus Shale; Journal of Contemporary Water Research & Education; Issue 147, pages 72-79, March2012; kdf)

Despite the fact that industrial natural gas development is initiated at the national and global scales, land use decision-making and impacts are felt at the local scale where rural stakeholders (who often utilize diverse, resourcebased livelihood strategies) must compete for the same land and water resources as fossil fuel developers. This brings into focus why oil and gas firms aggressively try to control the discourse about the hydro-social cycle. Importantly, desires to expand local economic growth opportunities are ever-present, and landowners are often motivated to lease their property to extraction firms based on complex, multi-scalar arguments that center on this possibility. This has created strong tensions between proponents and opponents, particularly because water is both abundant in northeastern PA and is argued to be just another economic input in the broader picture. This is in opposition to water as a multi-faceted, multi-value resource that can be readily degraded, perhaps irrevocably in the natural gas industrial production process. Harvey (2005) has broadly posited that neoliberal strategies are enacted to ensure the consolidation of capital into specific hands, and Bakker (2010) suggests that water is a ‘final frontier’ for capitalism. While we agree, this does not sufficiently explain why the multi-scalar, pro-fracking arguments are effective. We know, for example, that the arguments are intellectually weak: natural gas extraction is not “green” (Howarth et al. 2011); shale gas will not likely get the nation “off” of foreign oil (Tyndall Centre 2011); fracking poses serious risks to water quality and is in need of stronger regulations (Parfitt 2010; Jackson et al. 2011). Also the process is driven by specific interests (e.g., America’s Natural Gas Alliance). We suggest, then, the issue is less about the argument, and more about the way the hydro-social cycle is framed in support of fracking. Fletcher (2010) suggests that neoliberalism is a “general strategy of governing human action” (171), or a way of ‘conducting conduct’ (Foucault 2008; Fletcher 2010, 173). In other words, neoliberalism is not just an argument, but also a strategy for reworking societies’ perception of, and relationship to, the non-human world (McCarthy and Prudham 2004; Heynen et al. 2007). Since, at the outset, environmental concerns are often seen in opposition to development, fracking proponents must co-opt, define, and control the meaning of environmental resources. This first means redefining the value of water as an economic input, so that its degradation makes sense in a broader benefit/cost framework. Thus the hydro-social cycle is less a relationship between people and water, but rather a commodity that can be monetized for global markets (Finewood and Porter 2010). One can observe the effectiveness of such a practice through the sacrifices that individuals are expected to make for their – and the nation’s – economic future. In other words, people must exchange their noneconomic resources for economic resources, as if they were simply interchangeable. In this scenario, firms are the legitimate source of knowledge and information. Neoliberal approaches to environmental governance suggest “rolling back” environmental regulations (Peck and Tickell 2002), tacitly celebrating the knowledge and experience of private industry. In this case, with a lack of funding for regulatory agencies and a general disdain for environmental concerns when framed as opposing economic development, a knowledge vacuum is created for oil and gas firms to fill. Firms become the de facto expertise on the environmental impacts of fracking as well as the expert counterpoint to anti-fracking voices. In addition, as the fracking process happens up to a mile under the surface of the ground, in largely inaccessible and rural areas, and often on private property, the full spatial and temporal impacts of the process occur largely outof-sight, leaving stakeholders very few alternatives but to seek information from oil and gas firms. Finally, as the neoliberalization of the hydrosocial cycle becomes taken-for-granted, or common sense, those who speak up for water resources as a human/non-human right are increasingly marginalized. The refrain of environmentalists as “anti-jobs,” “being out of touch with reality,” and/or “prioritizing nature over people” has become relatively common trope in U.S. society. Even those who may not consider themselves environmentalists, but seek to advocate for regional environmental resources, are marginalized within the broader debate. Further, not only does this tactic set the discursive stage for a rational group of economically minded people versus irrational environmentalists (i.e., economy versus the environment), but it also uses environmental perception as an arena for political and economic projects (Heynen et al. 2007, 12). Thus the legitimacy of a neoliberal environment discourse is reinforced while delegitimizing alternatives. Conclusion Thus far we have argued that multi-scale neoliberal discourses do more than obfuscate comprehensive understandings of the impacts of fracking on water resources. They also create a way of conducting conduct that normalizes the impacts fracking has on water resources. In this vein of thinking, Castree (2003) has asked, why should we care about the capitalization of nature? We contend that the socio-environmental risks of fracking are potentially high and it is largely rural communities who are vulnerable to these risks. At the same time, these communities must make land use decisions based on incomplete and competing forms of knowledge. One or our goals is to bring attention to the potential impacts of fracking and to develop a better understanding of the ways stakeholders perceive costs and benefits in order to make land use decisions. But more broadly, we are interested in contributing to a context-specific analysis of the ways neoliberalism is (re)defining the relationships between people and the non-human world. As market approaches to environmental regulation become a more accepted, and perhaps a dominant part of governance strategy (See Anderson and Leal 2001), places like northeastern PA are, “written off for environmental destruction in the name of a higher purpose, such as the national interest” (Scott 2010, 31). These “sacrifice zones” assume an ecological disconnect between people and their environment, normalizing environmental degradation in some places while protecting others, and also assume no alternative uses of land or energy resources. This can be viewed as a form of remote environmental exploitation and brutality where the scalar issues make these sacrifice zones almost invisible to the larger nation and world. We feel that these struggles to (re)define the nature/ society relationship is about the power to ensure capital flows into specific hands, which will likely result in greater costs to other people and their environments. Formally investigating and deconstructing pro-fracking discourses is part of an ongoing project to come to terms with the realities involved with the transformation of the hydrosocial cycle and with the water-energy nexus, and to strive for a more equitable future.

#### It is no coincidence that we’ve been taught that warming isn’t anthropocentric and that renewables aren’t a solution—it is just another way to cover up the environmental degradation caused by the industry. A continuation of this pedagogy that promotes mastery over nature ensures massive violence against the periphery. It is necessary we adopt an ecopedagogy, which embraces indigenous forms of knowledge that rejects this hegemonic worldview.

Darder 2010 (Antonia Distinguished Professor of Education University of Illinois, *Critical Pedagogy, Ecoliteracy, and Planetary Crisis*, Preface, Vance)

The Western ethos of mastery and supremacy over nature has accompanied,¶ to our detriment, the unrelenting expansion of capitalism and its¶ unparalleled domination over all aspects of human life. This hegemonic worldview has been unmercifully imparted through a host of public policies¶ and practices that conveniently gloss over gross inequalities as commonsensical¶ necessities for democracy to bloom. As a consequence, the liberal democratic¶ rhetoric of “we are all created equal” hardly begins to touch the¶ international pervasiveness of racism, patriarchy, technocracy, and economic piracy by the West, all which have fostered the erosion of civil rights and the¶ unprecedented ecological exploitation of societies, creating conditions that¶ now threaten our peril, if we do not reverse directions.¶ Cataclysmic disasters, such as Hurricane Katrina, are unfortunate¶ testimonies to the danger of ignoring the warnings of the natural world,¶ especially when coupled with egregious governmental neglect of impoverished¶ people. Equally disturbing, is the manner in which ecological crisis is¶ vulgarly exploited by unscrupulous and ruthless capitalists who see no¶ problem with turning a profit off the backs of ailing and mourning oppressed¶ populations of every species—whether they be victims of weather disasters,¶ catastrophic illnesses, industrial pollution, or inhumane practices of incarceration.¶ Ultimately, these constitute ecological calamities that speak to the¶ inhumanity and tyranny of material profiteering, at the expense of precious¶ life.¶ The arrogance and exploitation of neoliberal values of consumption¶ dishonor the contemporary suffering of poor and marginalized populations¶ around the globe. Neoliberalism denies or simply mocks (“Drill baby drill!”)¶ the interrelationship and delicate balance that exists between all living beings,¶ including the body earth. In its stead, values of individualism, competition,¶ privatization, and the “free market” systematically debase the ancient¶ ecological knowledge of indigenous populations, who have, implicitly or explicitly, rejected the fabricated ethos of “progress and democracy” propagated¶ by the West. In its consuming frenzy to gobble up the natural resources¶ of the planet for its own hyperbolic quest for material domination, the¶ exploitative nature of capitalism and its burgeoning technocracy has dangerously¶ deepened the structures of social exclusion, through the destruction of¶ the very biodiversity that has been key to our global survival for millennia.¶ Kahn insists that this devastation of all species and the planet must be¶ fully recognized and soberly critiqued. But he does not stop there. Alongside,¶ he rightly argues for political principles of engagement for the construction of¶ a critical ecopedagogy and ecoliteracy that is founded on economic redistribution,¶ cultural and linguistic democracy, indigenous sovereignty, universal¶ human rights, and a fundamental respect for all life. As such, Kahn seeks to¶ bring us all back to a formidable relationship with the earth, one that is¶ unquestionably rooted in an integral order of knowledge, imbued with¶ physical, emotional, intellectual, and spiritual wisdom. Within the context of¶ such an ecologically grounded epistemology, Kahn uncompromisingly argues¶ that our organic relationship with the earth is also intimately tied to our¶ struggles for cultural self-determination, environmental sustainability, social¶ and material justice, and global peace.¶ Through a carefully framed analysis of past disasters and current¶ ecological crisis, Kahn issues an urgent call for a critical ecopedagogy that¶ makes central explicit articulations of the ways in which societies construct¶ ideological, political, and cultural systems, based on social structures and¶ practices that can serve to promote ecological sustainability and biodiversity¶ or, conversely, lead us down a disastrous path of unsustainability and¶ extinction. In making his case, Kahn provides a grounded examination of the¶ manner in which consuming capitalism manifests its repressive force¶ throughout the globe, disrupting the very ecological order of knowledge¶ essential to the planet’s sustainability. He offers an understanding of critical¶ ecopedagogy and ecoliteracy that inherently critiques the history of Western¶ civilization and the anthropomorphic assumptions that sustain patriarchy¶ and the subjugation of all subordinated living beings—assumptions that¶ continue to inform traditional education discourses around the world. Kahn¶ incisively demonstrates how a theory of multiple technoliteracies can be used¶ to effectively critique the ecological corruption and destruction behind¶ mainstream uses of technology and the media in the interest of the neoliberal¶ marketplace. As such, his work points to the manner in which the sustainability¶ rhetoric of mainstream environmentalism actually camouflages wretched neoliberal policies and practices that left unchecked hasten the annihilation¶ of the globe’s ecosystem.¶ True to its promise, the book cautions that any anti-hegemonic resistance¶ movement that claims social justice, universal human rights, or global peace¶ must contend forthrightly with the deteriorating ecological crisis at hand, as¶ well as consider possible strategies and relationships that rupture the status¶ quo and transform environmental conditions that threaten disaster. A failure to integrate ecological sustainability at the core of our political and pedagogical struggles for liberation, Kahn argues, is to blindly and misguidedly adhere¶ to an anthropocentric worldview in which emancipatory dreams are deemed¶ solely about human interests, without attention either to the health of the planet or to the well-being of all species with whom we walk the earth.¶ Important to the contributions of this volume is the manner in which¶ Kahn retains the criticality of the revolutionary project in his efforts to¶ dialectically engage the theories of Paulo Freire and Ivan Illich, in ways that¶ significantly pushes Freire’s work toward a more ecologically centered¶ understanding of human liberation and that demonstrates Illich’s continued¶ relevance on these matters. Key to his argument is the recognition of planetary¶ sustainability as a vital and necessary critical pedagogical concern. In a¶ thoughtful and effective manner (which has been long coming), Kahn¶ counters spurious criticisms railed against the integrity of critical pedagogy¶ and its proponents. Instead, he highlights both the radical underpinnings of critical theoretical principles and the historicity of its evolution— acknowledging both its significant contributions to the field, as well as its¶ shortcomings in past articulations. Rather than simply echo denouncements¶ of “beyond critical pedagogy,” Kahn intricately weaves possibilities drawn¶ from Freire and Illich, neither essentializing the work of these theorists nor¶ ignoring the problematic instances of their formulations. This discussion¶ brings a mature and refreshing sense of both political grace and sober¶ critique, which supports the passion of our pedagogical traditions, while¶ simultaneously chastising our slowness in taking up the mantle of ecological¶ responsibility.¶ Through the reformulation of Herbert Marcuse’s contributions to critical¶ theories of society, Kahn gives voice to a North American ecopedagogy that¶ thoughtfully seizes the power of radical environmental activists, while¶ simultaneously opposing and calling for the remaking of capitalist ecological¶ practices, as a key component to any critical pedagogical project. By so¶ doing, critical pedagogy is forcefully challenged to step up to the demands and needs of a world in ecological crisis, in the hopes of transforming itself¶ into a counter-hegemonic resistance movement imbued with ecological¶ consciousness, respect for beauty in all life, and a serious commitment to¶ preserving the multifarious nature of our humanity. In the process, Kahn¶ propels us beyond the debilitating theoretical posturing of the left in ways¶ that liberate our political sensibilities and guide us toward alternative¶ pedagogies of knowledge construction and new technopolitics of education¶ necessary for our future sustainability.¶ Similar to revolutionary ecologists before him, Kahn urges for a critical¶ shift in our worldview from one that is dominated by the instrumentalization¶ of ethnocentrism, xenophobia, militarism, and the fetishizing of all living¶ functions, to one that acknowledges unapologetically and wholeheartedly the¶ deep intimacy and organic connection at work in all forms of existence. In¶ the spirit of Vandana Shiva’s “earth democracy,” Kahn also argues for a¶ ecopedagogy that demands we “remove our blinders, imagine and create¶ other possibilities,” reminding us that “Liberation in our genocidal times, is,¶ first and foremost, the freedom to stay alive.”1¶ True to this dictum, Kahn unambiguously demands that the survival of¶ the planet (and ourselves!) underscore our political and pedagogical decisions,¶ despite the fact that seldom have questions of ecological concern been made¶ central to the everyday lives of teachers and students or to the larger context¶ of movement work, save for the liberal agenda of the Sierra Club or the wellmeaning¶ discourse on population control for poor and racialized women,¶ espoused by people of all ideological stripes. Perhaps, it is this “missing link”¶ in the curriculum of both public schools and political movements that is most¶ responsible for the historically uncritical and listless response to the global¶ suffering of human beings subjected to imperial regimes of genocide, slavery,¶ and colonialism. In truth, a deeper analysis exposes sharply a legacy that¶ persists today in the shrouded values and attitudes of educators from the¶ dominant class and culture who expect that all oppressed populations and¶ living species should acquiesce to the dominion and hegemonic rule of the¶ wealthy elite.¶ It is precisely such a worldview of domination that perpetuates the extinction of whole species, as it does the cultural and linguistic destruction of¶ peoples and nations outside of a “first-world” classification. As a consequence,¶ our biodiversity is slipping away, despite scientific findings that¶ clearly warn of the loss of hardiness and vitality to human life, as a direct¶ consequence of the homogenization of our differences. It is equally ironic to note here how repression of the body itself is manifested within the capitalist¶ fervor to commodify or colonize all forms of vital existence. Schools, unfortunately,¶ are one of the most complicit institutions in the exercise of such¶ ecological repression, generally carried out through the immobilization of the¶ body and the subordination of our emotional nature, our sexual energies,¶ and spiritual capacities.¶ In response, Kahn eloquently argues for a critical ecopedagogy and¶ ecoliteracy that supports teachers in engaging substantively students’ integral¶ natures, in an effort to forge an emancipatory learning environment where¶ all can thrive amid everyday concerns. As such, he makes clear that, although¶ important, it is not enough to rely solely on abstract cognitive processes,¶ where only the analysis of words and texts are privileged in the construction¶ of knowledge. Such an educational process of estrangement functions to¶ alienate and isolate students from the natural world around them, from¶ themselves, and one another. This, unwittingly, serves to reinforce an¶ anthropocentric reading of the world, which denies and disregards the¶ wisdom and knowledge outside Western formulations. In contrast, an ecopedagogy¶ that sustains life and creativity is firmly grounded in a material and¶ social understanding of our interconnected organic existence, as a starting¶ place for classroom practice and political strategies for reinventing the world.¶ Also significant to Kahn’s notion of ecopedagogy is an engagement with¶ the emancipatory insights and cultural knowledge of indigenous populations,¶ given that the majority of the social and political problems facing us today¶ are fundamentally rooted in mainstream social relations and material¶ conditions that fuel authoritarianism, fragmentation, alienation, violence,¶ and greed. Such anti-ecological dynamics are predicated on an ahistorical¶ and uncritical view of life that enables the powerful to abdicate their collective¶ responsibility to democratic ideals, while superimposing a technocratic¶ and instrumental rationality that commodifies and objectifies all existence.¶ Such a practice of education serves to warp or marginalize diverse indigenous¶ knowledge and practices, by privileging repetitive and unimaginative¶ curricula and fetishized methods. Anchored upon such a perspective of¶ schooling, classroom curriculum socializes students into full-blown identities¶ as entitled consuming masters and exploiters of the earth, rather than¶ collective caretakers of the planet.¶ In contrast, Kahn explores the inherent possibilities at work within¶ indigenous knowledge and traditions, in ways that enhance our capacity to¶ not only critique conditions of ecological crisis, but to consider ways in which non-Western societies and peoples have enacted ecologically sustaining practices within the everyday lives of their communities. He turns the false¶ dominion of the West on its head, offering alternative ways of being that hold¶ possibilities for the reconstruction of institutional culture, the transformation¶ of how we view technology and science, and thus the reformulation of public¶ policy. As critical educators and revolutionary activists across communities of¶ difference, we are encouraged to turn to the wisdom of our own historical¶ survival, in serious and sustained ways, in order to work toward the abandonment¶ of colonizing values and practices that for centuries have denigrated¶ our cultural ways and attempted to disable our life-sustaining capacities. Moreover, to contend effectively with issues of racism, sexism, homophobia,¶ disablism, and other forms of inequalities, a life-affirming ecological¶ praxis is paramount. That is, one that encompasses a refusal to adhere to¶ political, economic, and philosophical disconnections, which falsely separate humankind from those ecological dynamics that shape local, global, regional,¶ rural, and urban landscapes. Instead, static views of humanity and the planet,¶ which inadvertently serve the commodifying interests of capital and its¶ penchant to divide and conquer, are challenged and dismantled through an¶ integral political solidarity of heart, mind, body, and spirit. Accordingly, a¶ critical ecopedagogy must then encompass those philosophical principles that¶ are at home with ambiguity, dissonance, difference, and heterogeneity, as an¶ ever-present phenomenon. Such an ethos supports a world where crossspecies¶ concerns are both commonplace and valued for their creative¶ potential in the making of a truly democratic, just, and peaceful world.

#### In response to the cooption of the university, we advocate:

#### The United States federal government should remove the restriction from the zoning laws related to distributed wind systems.

#### Preemption for distributed wind has precedent, and solves the zoning barrier.

Green and Sagrillo 2005 (Jim National Renewable Energy Laboratory, and Mick Sagrillo Power and Light, “Zoning for Distributed Wind Power — Breaking Down Barriers”, <http://www.renewwisconsin.org/wind/Toolbox-Homeowners/Zoning%20for%20Distributed%20Wind-JGreen%20and%20MSagrillo.pdf>, Vance)

The Preemption Option¶ An option for distributed wind advocates to consider that has significant leverage is the¶ preemption of home rule. A higher legislative authority, state or federal, can override home rule¶ in order to implement particular land-use policy in the public interest. The preemption addressed¶ here is limited in scope so as to preserve home rule to the extent possible while breaking through¶ a particular zoning barrier. The key advantage of preemption is the avoidance of taking the¶ distributed wind zoning battle to each local jurisdiction. The policy argument may be made once¶ at a higher, more central level of government. The result is more rapid and uniform application¶ of a particular policy. Home rule is a well-established legal principle and is not easily set aside,¶ but there are precedents for the effective use of limited preemption.¶ Federal Preemption of Home Rule¶ The Telecommunications Act of 1996 includes partial federal preemption of home rule that¶ facilitated the rapid expansion of the cell phone industry during the past decade (Heverly 1996).¶ This act limits the authority of local jurisdictions to regulate the installation of cell phone¶ antennas and towers.¶ The act precludes¶ 1. unreasonable discrimination among providers of similar services;¶ 2. prohibitions, or restrictions that have the effect of prohibiting, provision of¶ wireless services; and¶ 3. regulation of placement, construction, or modification of facilities based on¶ environmental effects of radio-frequency emissions (so long as facilities¶ comply with FCC requirements).¶ The act requires¶ 4. action on applications to take place within a reasonable period of time; and¶ 5. denial of applications be in writing supported by substantial evidence¶ contained in a written record.

#### **The plan is necessary to help escape the grasp of the natural gas industry**

Pursely and Wiseman 2011 (Garrick B. [Ass prof of Law, U of Toledo] and Hannah [Ass prof of law @ Tulsa]; Local Energy; 60 Emory L.J. 877; kdf)

In one sense, this is similar to other "federal leadership with subnational government implementation" regimes that are characteristic of environmental federalism. n315 But there is one crucial difference. To truly empower local governments to exercise regulatory authority and discretion in the manner that will be most beneficial, the traditional power of state governments to preempt local government authority must be eliminated in this regulatory context. Perhaps paradoxically, then, establishing a stable regime of decentralized local regulatory authority requires, in addition to a federal minimum standard, federal preemption of state power to interfere with local decision making. Our analysis is context dependent; we do not suggest that this form of federal-local cooperation is optimal in every environmental regulatory context. Our argument is rooted in the particular dynamics of the regulation of distributed renewable energy technology. We first explain our reasons for preferring to lodge primary regulatory authority over distributed renewables with local rather than state governments and then briefly discuss theoretical and doctrinal issues concerning the legality of our proposed cooperative regulatory scheme.

#### This debate is about pedagogy; you won’t vote for the team with the largest impacts, but instead the team that develops the best pedagogy

Vardi 1999 (Iris, Teaching and Learning Development Officer Edith Cowan University, “Developing critical writers at the undergraduate level: some insights from critical thinking pedagogy and linguistics”, HERDSA Annual International Conference, <http://www.herdsa.org.au/wp-content/uploads/conference/1999/pdf/Vardi.PDF>, Vance)

This impact that different critical requirements can have on text type choice can be illustrated through the examination of two written assignment prompts, each with quite different critical requirements. The first example comes from the applied sciences. "A major solar energy industry group has commissioned you to report on the state of solar energy production relative to current alternative power generating technologies. In your report, evaluate the current efficiency of silicon technology for the solar production of electricity. Discuss the long-term prospects for the solar energy industry in the light of alternative power generating technologies. Consider piezoelectrics and determine whether it is feasible to develop a more efficient process for solar electricity production" This prompt clearly requires a range of critical skills including technical evaluation and comparison, reasoning skills, prediction and problem solving. Together, the critical requirements and the audience requirements suggest that the final written product would need to contain a range of text types. § Technically evaluating silicon technology and other alternative power generating technologies requires critical reading of technical articles and suggests text types such as description, explanation and argument. Vardi HERDSA Annual International Conference, Melbourne, 12-15 July 1999 4 § Comparisons of technologies requires analysis and evaluation and results in text types such as argument and explanation. § Evaluation of others' arguments requires text types such as text interpretation and the further generation of argument. § The problem solving aspect of the assignment requires generation of an idea for real-world application and this requires text types such as description and explanation to share with the audience this creative aspect of the question, coupled with further argument. If recommendations are added to the report, then the text types of instruction and further argument may also be used. Consider the different text types that could be elicited by this second example - an assignment question from the economics and finance area. "The Thatcher government introduced the poll tax in the late 1980s under the 'benefit to user' definition of the equity principle. Critically evaluate equity issues in relation to this tax and the previously existing property taxes." In this prompt, a different combination of critical skills is required including reasoning skills, analysis, synthesis and evaluation. The structuring of the question suggests the need for the following text types: § narration - to provide the historical background § definition - to clarify 'equity principle' and 'benefit to user' § description and explanation - to explain the different taxes § text interpretation and argument- in the critical evaluation of others' arguments § argument - to generate own view on the equity issues These two vastly different prompts illustrate how different critical demands clearly impact on the linguistic form or structure of the written work. Each time a student writes to a different prompt with different critical requirements, so the text structure of their written piece needs to change. This is a vastly different situation from the "science report" or the "five paragraph essay" students may have learnt at high school and if this were all university students had to cope with, then it would be challenge enough in itself. However, structuring a written piece so that it clearly conveys a student's thinking processes in relation to the set task is only one part of academic writing. Coded over this is the need to express those thoughts in an academic voice and for a novice entering the world of expertise, this can be fraught with difficulty. Linguistic impacts: academic voice Students in their undergraduate years are still novices in their discipline, and the experts teaching them require what Paltridge (1998, p124) terms as "displays" of knowledge. It is expected that these "displays" assume the specific language of the discipline as well as the general language of academia. Students need to use the accepted vocabulary and phraseology of the discipline, in a manner which mimics expertise (Bartholomae, 1985 p 135). In this way, students can "sound", for instance, like a medical practitioner, an agricultural scientist or a lawyer and thus become members of their own specialised and expert discourse community. Tensions, however, arise when students are asked to critically think about the ideas in the discipline. On the one hand they are novices and on the other they are encouraged, to sound like experts; and while experts do recirculate the words and ideas of the discipline (Pennycook, 1996 p 207), they also criticise, reflect and create knowledge. Yet, students can be penalised for overstepping established boundaries in the disciplines. This attitude can be revealed through comments such as "source for this?" written next to an opinion expressed by a student in an essay. This can place a student firmly back into the role of knowledge telling, a role which is in direct opposition to the function that Geisler (1994 p 81) assigns to the writing of experts - that of the "creation and transformation of academic knowledge". This conflict between expectations of showing evidence of critical thought like an expert while still being expected to tell the knowledge requires the student to tread a very fine line in crafting their writing and can be quite difficult (Baynham et al,1994 p 165). In particular, it demands a sophisticated appreciation of how to refer to and acknowledge others' work while still attempting to express one's own voice. This can create tensions for students (Currie, 1998 p 2) as they attempt "in their own words" to recycle established ideas and reflect on these within the boundaries accepted by the discipline at that time. Critical literacy requirements at university: false starts and conflicting messages How can these complexities in student role, thinking and writing be dealt with at the tertiary level? One way is through the cross-disciplinary approaches to developing academic literate behaviours which have been gathering momentum over the past twenty years. The literature suggests a number of ways in which academic literacy can be developed. For instance, Blanton (1994, p 8), based on the work of Heath & Mangolia (1993 p 41), suggests that, within their disciplines, students need to interpret texts, take a position in relation to their interpretation and synthesise texts both in written and oral forms. These suggestions match in part with critical thinking pedagogy, where teachers are exhorted to immerse students in a wide range of higher order activities within the discipline area (for examples see Paul, 1992; Ruggiero, 1988; Marzano et al, 1988). As discussed earlier in this paper, such activity, however, goes beyond thinking about written texts. So it would seem that immersion in a full range of critical thinking tasks (based on written texts, oral texts, observation and experience) in the discipline, along with a requirement to write about these, is one important way to develop a wide range of critical writing abilities. Is this happening across tertiary education? In considering tertiary education, one of the distinguishing features has to be the mass delivery of information through lectures, which for many students epitomises their tertiary experience. The delivery of lectures is often a one way affair which provides students with little opportunity to critically engage with the lecturer's ideas. This can provide students with the message that an expert is providing oral information that they must learn and regurgitate. Such a message can also provide students with the first false start to their apprenticeship into the literacy practices of the discipline. Immersing students in critical thinking requires critical talk and engagement by both the teachers and the students. Such an approach, however, is often not taken in mass lectures. This has caused many commentators to lament this "transmission of knowledge" (eg Laurillard, 1993; Paul, 1992) - a method which does not foster critical attitudes to content matter such as questioning or interest in the sources of ideas, attitudes, beliefs & values.

#### Voting affirmative is an endorsement of a qualitative increase in energy production

Byrne et al. 2006 (John Byrne, Nobel Peace Prize Laureate for his contribution to the IPCC, director of the Center for Energy and Environmental Policy and distinguished professor of energy and climate policy at the University of Delaware, Noah Toly, Director of Urban Studies and Associate Professor of Politics & International Relations, Wheaton College, Young-Doo Wang, Associate Director of the Center for Energy and Environmental Policy and Professor of Energy and Environmental Policy and Urban Affairs and Public Policy at the University of Delaware, 2006, Transforming Power: Energy, Environment, and Society in Conflict, eds. John Byrne, Noah Toly, Leigh Glover, pp. vii-x)

Spiking prices. cartel decisions to limit production, regional conflicts to control ever scarcer reserves, periodic accidents, spills, and explosions, all are assured to bring attention to the operations of the global energy system. Rising in importance are headlines that associate modem energy with modern environmental problems ranging from climate change to public health advisories that urban air is, on occasion, unfit for human consumption. Shuttling from background to foreground (and back) are hopeful projections of technological solutions to energy problems. Policy discussions focus on efforts to improve technology and subject the sector to increasing doses of market curatives. Rarely are modern energy’s politics and political economy discussed in a sustained manner. When spiking oil prices and cartel-ordered production reductions send skyward the profits of the megacorporate rulers of the sector, politics and political economy questions surface. When ecosystems are harmed or threatened by energy operations, and when national security advisors become anxious about their capacity to control the system, politics and political economy questions gain importance. But when energy headlines fade, inquiry into the sector returns to a state of hibernation (except for 'breaking news’ about innovations to revolutionize and lower the cost and. often these days, the environmental impact, of energy use). The attention-neglect cycle of inquiry into the energy sector belies its social importance. The modern energy regime is to be credited with creating an integrating quantitative and transcendent logic which catalyzed the economic and technological forces underpinning industrial and, now, post-industrial societies. Long ago, Lewis Mumford captured this social role of the modern energy regime and its synergy with other elements of modernity (1961: 570): Quantitative production has become, for our mass-minded contemporaries, the only imperative goal: they value quantification without qualification. In physical energy, in industrial productivity, in invention, in knowledge, in population the same vacuous expansions and explosions prevail. The coevolution of modern energy and modem economies has resulted in ‘“synergistic development’—a process of reinforcing growth between [energy] and...economy” (Byrne et al., 2004: 495)1 and this synergism is now embedded in both. The modern energy-economy synergy was propelled neither by energy scarcity nor by a sudden technological breakthrough. As to the former, low-entropy energy from the sun was (and is) available in virtually unlimited quantities and has been socially appropriated for millennia by various means. Indeed, until the industrial revolution, energy technics were generally focused upon the conversion of biomass into carbohydrates to energize work by humans and animals. These deliver ample energy flows but at lower intensities than modern economic growth demands and were largely abandoned by the Global North early in the twentieth century. It is important to note, however, that movement from a carbohydrate to a hydrocarbon economy could not have been driven by considerations of energy intensity since the modern economy was barely evident when the hydrocarbon substitution was underway. As Mumford (1934) has documented, the transformation of energy systems and economies was coincident, not successive. On the question of technological breakthroughs, the technology to mine and burn mineral energy had been available at least since the seventeenth century (see Mumford’s 1934 discussion of the eotechnic phase of technology-environment-society relations), but was not deployed until the nineteenth and early twentieth centuries when the institutional framework—the “pentagon of power” (Mumford, 1970)—that could systematize a quantitative and ecologically transcendent political economy was established. Hydrocarbon fuels—oil, coal, and natural gas—that powered the industrial revolution are the result of captured energy in the form of fossilized plant matter from the carboniferous period of the paleozoic era. The rate of exploitation of these fuels is limited by the rate and incremental cost at which they can be extracted and combusted, a chiefly technological and economic, rather than ecological or social, function. In this way, fossil fuels held the promise of transcending the natural rate at which solar energy reaches the surface of the earth and is stored in various forms appropriate to both endosomatic and exosomatic uses.3 As well, fossil fuels enabled a transcendence of social rhythms that had dictated the pace at which energy might be exploited, contributing to the replacement of a largely subsistence-based economy with the modem surplus economy. The irony of modernity’s successful quantification and ecological transcendence is now obvious. Combustion of fossil fuels has led to rapid exhaustion of mineral energy, with oil reserves, for example, expected to peak and decline early in this century (Deffeyes, 2001; Goodstein, 2004; Roberts, 2004). Modern societies have consumed 12 million years of decayed biomass in 300 years (Dukes, 2003) and now have no natural feasible replacement. But an additional legacy of modern energy’s attempted transcendence is increasing atmospheric concentrations of greenhouse gases, which cause global warming and are traceable to our overactive appetite for "buried sunshine” (Dukes, 2003). Both the industrial and post-industrial eras—despite the latter’s purported dematerialization—have descended into this continual state of fossil fuel scarcity and global ecological risk in no small measure because of the carbonization of their energy systems. In Technics and Civilization, Mumford describes (1934: 151 - 211) the rise of “carboniferous capitalism” in the ‘‘paleotechnic phase” of technology-environment-society relations. During this phase, “an alliance of science, capitalism, and carbon power” reorganizes social order for the purposes of fulfilling an underlying imperative of ceaseless growth (Byrne et al., 2002: 267). The accompanying concentration of political and economic power has a specific ecological manifestation: energy pollution as “a functional element of human progress” (Byrne et al., 2002: 267). While ecological degradation is the focus of much criticism regarding the effects of carboniferous capitalism, Mumford also stressed the social relations engendered by the conventional energy system. Indeed, despite many important advances, human life and livelihoods have been risked under the modern energy regime. Since the emergence of carbon-mediated social relations, an ever present social crisis can be observed, but has been largely ignored (Mumford, 1934: 161): “What paleotect dared to ask himself whether labor-saving, money-grabbing, power-acquiring, space annihilating, thing producing devices were in fact producing an equivalent expansion and enrichment of life.” Contemporarily, the intersecting social and environmental consequences of modernized energy can be described as follows (Byrne et al., 2002: 268): Environmental costs of production and wealth creation were considered, when considered at all, in the aggregate and not the particular. Accordingly, pollution became a “social cost,” implying that the burdens were collective, as were the benefits. Nothing could be more misleading; the costs and benefits of pollution were sharply and equivocally divided within society and between societies from the onset of industrialization to the present day. Energy systems have underpinned and constructed deeply unequal social relations, as well as imbalanced nature-society relations, since the dawn of the fossil fuel era. The synergies of industrialization and conventional energy are now everywhere evident. Just as industrialization has been largely co-evolutionary with the conventional energy regime (see Norgaard, 1994), their coevolved social project is predictably similar: environmental conditions constructed by the combustion of fossil fuels mediate social relations in much the same way as described by Mumford, concentrating the capacity to valorize and distribute privilege among wealthy communities and their preferred ecologies, while concentrating environmental and social harm among the marginalized and vulnerable. The confluence of the forces of fossil energy, market power, and engineered social existence has produced a global order that is “beyond nature,” operating on the shared, quantity-based logic of modem technology and economics (i.e., more, faster, and bigger are better).

#### The affirmative is a prerequisite to wind energy production. Absent investigating wind will reproduce the same implications the current carbonized capitalism has now.

Glover 2006 (Leigh [Director of the Australasian Centre for the Governance and Management of Urban Transport @ the U of Melborne; TRANSFORMING POWER ENERGY, ENVIRONMENT, AND SOCIETY IN CONFLICT; 249-50)

Some might argue that the current energy order is actually a combination of corporate, state, and societal demands representing a practical (and effective) compromise. Contemporary conditions, in this way of thinking, would represent the precursor to a soft energy future—a kind of “third way” of energy politics, resolving the right wing (hard path) and left wing (soft path) orthodoxies through sensible compromise.12 But this is a misleading formulation that papers over essential problems that the trend toward a “hard path renewable energy system” cannot resolve. For a number of reasons, today’s trends should not be taken as constituting a trajectory that will conclude in the achievement of a sustainable energy era. Firstly, the coming corporatist version of a soft energy future is premised on the view that renewable energy must meet all conventional energy needs— only better in nearly every way—and that we have the technology to do this. There is real doubt as to whether renewable energy technologies can meet existing and future energy needs of a corporate-led, middle-class-focused economy (which presumably include the commitment to economic growth). Total energy demand levels are high and efficiency is generally low in the developed world, and, in these circumstances, renewable energy cannot replace fossil fuels. Only by permanently curbing demand and greatly improving efficiency can there be any hope of a genuine renewables-based economy. The growth in size and efficiency of wind turbines, for example, will matter little if the overall growth in energy demand continues. Clearly then, the prospects for a soft energy future are tied to the prospects for a steady-state economy (or for those that don’t follow Herman Daly,13 an economy that can develop without increasing its material demands and waste products). Part of the problem here is that the corporate energy system is designed to promote growth and that renewable energy has been conscripted into this cause. Second, the closer renewable technologies come to meeting this need of a substitute fuel source, the more they will replicate the problems of conventional energy. This paradox is an uncomfortable reality for environmentalists, but what are we going to say when someone proposes a mile-high wind turbine? There’s a bind here in that meeting current energy needs under the conventional paradigm using renewable energy means big installations and plenty of them, and this just can’t occur without significant social and environmental costs. Decisions over trading off large hydroelectric schemes for large coal-fired power stations might not offer a clear environmental choice, but these are the types of prospects looming in a corporate energy system that seeks to expand its renewables base. It is unclear, then, whether the new energy order will have the full support of mainstream environmentalists. Third is the issue of the falling social barriers, particularly that of cost (or more precisely, retail price). Of course, if there were any reasonable accounting for the costs of conventional energy, then all sorts of options for renewable energy would already be widespread. Our prediction is that cost will prove to be a chimera and that lower prices for renewable energy will not result in its widespread adoption. Price is just one of many factors that have to be addressed in making renewable energy an acceptable fuel source for the corporate energy system; and in isolation, it will not prove decisive. In the history of the energy system, politics explains a great deal and price tends to reflect political decisions and circumstance, not vice versa. Thus growth in wind energy is often associated with its falling retail price, but governmental promotion of renewable energy created the market and made investment in wind energy secure, leading to economies of scale that have subsequently reduced the price. Using price to explain the condition of the energy system is simply “economism,” with its absurd assumption of “perfect markets.” Conventional wisdom holds that renewable energy has to compete with the costs of fossil fuels and nuclear energy, while it is offered here that costs merely reflect political decisions, so that when there is widespread political support for renewable energy, then it will be of an acceptable price (because politics, to put it crudely, decide what costs are counted). High costs of renewable energy serve as a rationale that, in turn, evokes a passive economy that serves to disguise an active set of political decisions.

I Can See for Miles and Miles

Hermann Scheer, Amory Lovins, and other pundits of a soft energy future, joined as they are by such august bodies of official energy wisdom as the IEA, are riding the wave of the ever-popular and optimistic field of future studies. Slightly off-putting is that the drumbeat for the forthcoming renewable energy revolution has been continuous since the 1970s oil crises, appearing in virtually every alternative energy journal every year in some form. As such, much of the talk of the forthcoming energy paradigm shift is propagandist and self-serving. This apparent continuity in the faith of soft energy advocates held over these decades masks a basic discontinuity in the very character of that much portended future. How far renewable energy now seems from its roots in the counter culture and how little remembered this heritage has become. By consigning the counter culture to oblivion and wiping history clean of its imprint of an energy transformation carrying forward a program of social reform, these origins have been cast aside with other populist condemnations of the counter culture as hedonistic, utopian, and socialist.14 Renewable energy today presents itself as the epitome of respectability, tied closely to professional cadres of technicians, scientists, and engineers, promoted by everyone from government agencies to business councils, and funded by shareholders and government grants. In effect, renewable energy has gone mainstream in every sense, transformed from a radical agenda to a conformist condition. Having abandoned its romantic William Morris-esque stance, renewable energy’s self-image is now that of high modernism, of the sleek white blades of wind turbines and the cool azure circuitry of the PV cell. Renewable energy has become the sort of high-technology modernism proposed by R. Buckminster Fuller (1971) and others within the “operating manual for spaceship earth” school of environmental managerialism that in retrospect seems to share much with contemporary “ecological modernization.” A contemporary generation could be forgiven for assuming that renewable energy was another benevolent product of those socially conscious corporations whose logos now adorn the “green” energy machinery of our time. In that collection of generalizations about renewable energy as a social solution were concerns about: an increasing interdependency in society, its growing complexity and the need for greater social management, its vulnerability to failures, the need for increased security of centralized systems, rising social and economic risks of these big systems, the alienation of people from decisions that shape their lives, and the inefficiency and precariousness of large systems. Oddly, while the smaller and easier environmental concerns have tended to be swept up in state-sponsored ecological modernization, the social concerns of these nascent energy system critics withered. A possible exception to this generalization is the decline of nuclear energy in the developed world; despite an enormous effort by state powers to arrest decline, the industry barely made it out of the 1970s. This decline, however, was hardly motivated by the wider social implications of the industry; rather, the technology proved to be too dangerous and its energy outputs too expensive despite the staggering levels of public sector subsidy and vigorous efforts to convince the public of the industry’s safety.16 That the use of renewable energy is increasing should not blind us to the fact that we are no closer to an alternative energy future than when the concept was promulgated almost three decades ago. Because the prospect of a vibrant and expanding nuclear energy industry was so appalling to environmentalists that the dilapidated condition of this completely state-subsidized industry has thrown the character of the fossil fuel component of the conventional energy system into lighter relief. And perhaps because some radical parts of the counter culture became transfused into wider social practice it is reasonable to consider that society took from these reformers those lessons that were most amenable and practical, and left the rest behind. Or it might be that vested interests allowed a degree of social and economic reforms in order to subvert more fundamental disruptions to political and economic elites (Byrne and Rich, 1983). And it may be that the transformation to an alternative energy system was a vision only suited to those who considered a revolution necessary. Many explanations are possible, but one cannot escape the rude fact that no major changes to the conventional energy system occurred through these years of challenge. Deregulation? Privatization? System benefits charges? Renewable portfolio standards? These changes are minor, even inconsequential, administrative measures that the interests of the corporate energy system have accommodated. So far, reformers have managed to eke out such small concessions for renewable energy, and little else. Before leaving this argument, the reader should not be under the impression that the political economy of corporate energy has exerted an iron grip over the attitudes, choices, and collective behavior of western society. Somewhere into this argument, and there is insufficient space here, we need to place renewable energy into the types of social change that have occurred, including changes to the broader economy and to lifestyles. On this count we risk technological determinism, but it is unavoidable. Corporate-managed, middle-class-based, consumer societies employ technologies to provide an array of services within the home, workplace, and in institutions. Modernization is more than the technologization of life, it also shapes social life toward the private, the insular, and the individual consumptive act. Yet this insularity for keeping comfortable, for earning a living, for entertainment, education, and whatever else, is often mistaken for independence. Such pseudo-independence is consumptive in nature, and the means for its production is outside the realm of consumption. Consumers in modern society, by definition, don’t create the products and services they consume—they buy them. A major misunderstanding about the contemporary effort to usher in sustainable energy systems lies in a failure to understand the basic interstices of corporatism, middle-class life, and consumerism. The middle-class has no interest in production and certainly does not equate the virtues of independence with being free to provide their own goods and services in energy or any other commodity. For the counter culture, the test of independence was whether the energy service is ‘off the grid.’ But the consumer-residents of corporate-managed societies are embedded in grids of an immense variety and complexity as necessary conditions of having access to mass consumption goods and services, of which electricity is but one. In this case, the growth of private consumption is made possible through the growth in the corporate economy, and the middle-class obliges by celebrating the greater opportunities to consume. The Alternative Energy Logo Here, then, is where renewable energy as a social solution has been doomed; renewable energy can be a productive technology that provides a service, but who in corporate-managed society wants independence in production? Almost no one in the developed world, it appears. To consider that there is a place for independent production of energy is completely counter to the mass consumption impulse of modernity. Provision of services by third parties, usually corporations and contractors, is the efficient (and profitable) preference of the contemporary order. Are we seriously considering that families who have service contracts for their water heaters and appliances, who have garages to service their cars, who use thermostats to control household temperatures, who use televisions and VCRs for entertainment, who operate computers and telephones in order to communicate with people and read items of interest, want to operate their own energy systems? Crossing the divide of fossil fuel energy requires using the bridge of energy conservation and reduced consumption to reach a genuinely renewable energy-based society on the other side. Such a transition means tackling contemporary society’s preference for abundance over sufficiency, for waste over frugality, for replacement over repair, and for frivolity over utility. Because a transformative renewable energy future cannot be premised on normal economic activity, the viability of the strategy rests on converting some of the core attributes of society. To date, the advocates of renewable energy have tended to look past this sociological condition and argue their case entirely on technological, economic, and ecological virtues. In contrast, the renewable energy proposal seems essentially premised on consumer sovereignty when the dominant consumer preference is for mass consumption. Advocacy of a soft energy future embedded in current society seems to take the economic rationality of the individual consumer as the motive force for change, when attention should have been directed at collective scales of transformation. So what is the current prospect for renewable energy on the broad scale for industrialized economies? • Renewable energy systems will likely be owned by oligopolies (state and private) that control the world’s fossil fuel, electric, and nuclear energy systems. • Renewable energy, in its logo-friendly format, will be made compatible with the corporatist, neo-liberal ideology of the developed world and will become part of the process of economic globalization. • Renewable energy will become part of the centralized system of energy production and distribution in which energy users’ choices will be those dictated by consumer sovereignty; i.e., they will be completely dependent on the corporate-organized and -defined market for ‘green energy’ and the like. • Renewable energy technologies will aspire to technological sophistication and will soon be understood and serviceable only by experts and managed by professionals. Today, I cannot readily buy or order renewable energy systems suitable for my home. They are not offered for sale in the building supply superstores and my local builder doesn’t know anything about them. After thirty years of advocacy, renewable energy is still a niche product. Yet what will be the transforming effect if, in the not too distant future, such systems are easily ordered (perhaps from the Internet)? Is anything more to be expected from the corporate vision of soft energy? All through the landscape of modernity are textbook examples of urban sprawl, yet of this multitude of new housing estates, few homes, if any, exhibit a solar orientation or passive solar design or evidence of other renewable energy applications. Wherever the renewables-based economy is meant to be happening, there is not sign of it, except in utility-scale wind farms, industrial agriculture’s development of biofuels, and giant office blocks ornamented with PV. Something has gone terribly wrong with the vision for a soft energy future. We passed the crossroads to a socially progressive alternative energy future some while ago. It was a small thoroughfare, poorly signposted, with an uncertain destination, and we were in a hurry at the time. We are at the point where renewable energy’s future looms and we can still remember where that alternative pathway was, but few, it seems, are interested in looking back. It is almost laughable that some of us believed that alternative energy could usher in a convivial society, the conserver society, or the alternative society (Illich, 1980; Henderson, 1988). Our soft energy future now shows every sign of being big, corporate-managed, state-subsidized, high technology-based, with modest amounts of renewable energy mixed with plenty of fossil fuel use. As befits the mass consumption mentality, citizens will neither own, control, understand, nor maintain the technology that produces this energy. They will not be considered responsible for its ecological effects, nor are they likely to reduce energy consumption or greatly increase the efficiency of its use; but they will be able to buy the logo of “green energy” from the same corporate governors who have traditionally managed energy affairs on their behalf. And who, in modern life, could want for anything else?

#### Our promotion of ecopedagogy is a route for us to reclaim the academy.

Kahn et al 2012 (RICHARD KAHN, Faculty member in Education at Antioch University Los¶ Angeles, ANTHONY J. NOCELLA II Hamline University as a Visiting Professor of Urban Education in the School¶ of Education.¶ AND SAMUEL DAY FASSBINDER “visiting professor” of English with DeVry¶ University, *Greening the Academy Ecopedagogy Through the Liberal Arts*, pg. xvi, Vance)

The Platonic academic corpus contributed significantly to the educational¶ heights of Athenian paideia, which in turn became the paradigmatic example¶ of civilized life through its cultural reproduction as the Roman tradition of¶ humanitas—the foundation for what we have come to designate in modern times¶ as the humanities curriculum (Kahn, 2010). Ironically, and somewhat tellingly,¶ the Romans paid their debt to the Academy by invading and devastating it, while¶ felling its lauded trees in support of the Roman military machine’s imperial¶ conquest of the Aegean that was then taking place during the Hellenistic era. The¶ recent movie Avatar perhaps lends a useful set of images to help us envision what¶ the siege of the Akademia must have looked and felt like to those Greeks who¶ had consecrated it as the presumed navel of universal learning. Thus, to speak of¶ “greening the academy” suggests that there is something much deeper (and even¶ archetypal) at stake than the “green campus movement” (Orr, 2010; Beringer &¶ Adombent, 2008; Koester, 2006) now in vogue—that reforms, however welcome,¶ like STARS, the gathering of college and university Presidents as signatories for a¶ campus climate agreement, or schools investing in the creation of LEED certified¶ architecture,3 are woefully insufficient ends that must themselves be reformed.¶ Indeed, the history of academia (per this origin story) correspondingly functions¶ as a secular mythopoetic narrative to the Biblical—and other similarly religious—¶ tales that chronicle the devastating spiritual loss of an Edenic habitat, even as it¶ likewise suggests a conclusion in which the “garden” is hopefully restored through¶ a process of continual renovation in accordance with the spirit of moral progress:¶ universitas semper reformanda.¶ Unfortunately, we need only look at the state of higher education today to see, despite its undoubtedly remaining a contested terrain (this book being one¶ such contestation), that the 21st century finds academia moving steadily from a¶ position characterized by continual crisis towards one of epochal catastrophe. In¶ a world in which global industrial systems have clearly emerged as major powers, thereby generating unprecedented historical outcomes of planetary genocide, ecocide, zoöcide—and likewise, epistemicide (see McLaren, 2012)—the idea¶ of “sustainability” must thus strive to take rigorously oppositional and tactically¶ concrete forms both on and off campus, if it is to transcend greenwashing by the public¶ relations industry as purchased by the “power complex” (Best et al., 2011) of said¶ systems. Sustainability cannot simply be handed over to STEM (science, technology,¶ engineering and mathematics) programs to coordinate as a field of endeavor without¶ being falsified. Neither is it sufficient merely to offer interdisciplinary environmental¶ studies programs (themselves often tilted toward and disciplinarily controlled by the¶ environmental sciences) as a reasonable reform in sustainability’s name. What is required is not a curricular addendum within the campus that passes under the happy buzzword of furthering “sustainable development,” but rather a sustained critical¶ intervention by visionary educational leaders, critical faculty, agitated students,¶ and emancipatory movements belonging to the communities in which academic¶ institutions are based, all organized together in order to morally transfigure the¶ relationship between the school and the society as part of a collective aspiration for¶ the total liberation of the potential peace, justice, joy, and the vital well-being of our¶ emerging planetary community.

#### **As debaters and intellectuals we must step back and understand the role of pedagogy within the university.**

Ortiz 2012 (Michael; Taking Henry Giroux's Borderless Pedagogy to Our Institutions of Higher Learning; Aug 4; truth-out.org/opinion/item/10549-continuing-toward-girouxs-borderless-pedagogy; kdf)

Additionally, colleges and universities (both public and private) also exist as sites that are meant to primarily develop and train minds and bodies to maintain the dominant and structural status quo. One of the growing contradictions in American higher education today is the fact that institutions continue to adopt corporate models for themselves, while simultaneously claiming to be centers for equitable multiculturalism and student empowerment. Since universities exist as institutions - like any other American institution - they follow the neoliberal trend of "employing deception by seizing a stripped-down language of choice, freedom, [empowerment and equality]." As Giroux puts it, "[Since] the educational force of the culture [has become] a powerful ideological tool for legitimating market-driven values and social relations, based on omissions, deceptions, lies, misrepresentations and falsehoods," then we must assume that the goal of these institutions is not to produce critically thinking students who can expect structural equality within their schools. Rather, we can assume that institutions of higher education have a primary interest in increasing enrollment and retention rates for the purpose of developing a larger constituency of "trained" people who will uphold current power systems through "market driven values," social relations and a fixed knowledge that is limited to the rationalization of the dominant structure that it serves. So, how do we confront this reality? We must move away from accepting the structural and ideological constraints that maintain current systems of domination. We must come to understand exactly how the gated pedagogical process works to limit our knowledge about ourselves and the world. We must make a transition toward a critical pedagogy that aims to always examine the environment in which we are being educated. As Giroux describes, "There is a need to develop what I call a project of democratization and borderless pedagogy that moves across different sites - from schools to the alternative media - as part of a broader attempt to construct a critical formative culture in the United States that enables Americans to reclaim their voices, speak out, exhibit moral outrage and create the social movements, tactics and public spheres that will reverse the growing tide of authoritarianism in the United States." In particular, institutions of higher education can better serve their students if they were to philosophically and institutionally adopt the idea of borderless pedagogy. Instead of developing college students as "highly trained" wage laborers in different specific fields (and by making billions of dollars of profit in the process), why don't colleges take the same amount of time and energy to develop college students who are highly educated in critical thinking and borderless thought? At all top administrative levels, colleges and universities need to actually make a commitment to student well-being (with "well-being" being defined by well-informed, conscious and analytic student thinkers themselves) and set the precedent for all staff and faculty members as well. Faculty members should be taught and shown just how race, class and gender are indeed playing out in their classrooms even if they don't know it. Gated universities and gated intellectuals may need to take a step back and realize that a large period of time might need to be dedicated to deconstructing the pedagogy of their field (since many of their disciplines were created and developed through the influence of all sorts of social conditions). Faculty members themselves may want to critique dominant structures and ideologies in their classrooms, thus setting an example for their students. And lastly, if college administrations and faculty members are not willing to acknowledge their blatant failure in helping their students become self-thinking, conscious agents of action who have the capacity to realize their own borderless potential, then they must continue to be challenged on all fronts (through scholarly critique by professors, through vocal displeasure by all community members and by the continued attempt to raise the consciousness of everyone involved even without administrative support).

#### Our desire for a non-neoliberal ecological education is our own as students at UCO to be subjects of action rather than objects waiting for capitalism to give us meaning.

Gibson-Graham2001(J.K. (pen name of Julie Graham [Prof. of Geography @ UMass & Ph.D. Clark Univ.] and Katherine Gibson [Prof. and head Dept. of Human Geography @ Australian National University & Ph.D. Clark Univ.]) May ["An Ethics of the Local" online @ <http://www.communityeconomies.org/papers/rethink/rethinkp1.pdf>,)

Starting with a practice of respecting difference and otherness, our two projects storied and inventoried the diversity of the local noncapitalist economy. Coming to a new language and vision of economy turned out to be an affirmation not only of difference but of economic capacity. The people engaged in our research conversations had a chance to encounter themselves differently—not as waiting for capitalism to give them their places in the economy but as actively constructing their economic lives, on a daily basis, in a range of noncapitalist practices and institutions. In this way they glimpsed themselves as subjects rather than objects of economic development, and development became transformed as a goal by giving it a different starting place, in an already viable diverse economy.

But there was more to the ethics of difference and otherness than enlivening economic diversity. Converting this principle into a practice of the self has involved us in nurturing local capacities for community. We are not speaking here of the community of commonality that "presumes subjects can understand one another as they understand themselves" (Young 1990, 302**).** Rather than convening people on the basis of presumed or constructed similarities, our projects seemed to foster communities of "compearance"20 in which being together, or being-in-common, was both the ground and fullness of community. The awakening of a communal subjectivity did not emerge from common histories or qualities but from practices and feelings—of appreciation, generosity, desire to do and be with others, connecting with strangers (no matter who), encountering and transforming oneself through that experience: To be completely sincere…the greatest pride that I have working as a community leader is my being able to share and develop myself within the community. To meet the person I don't know. And for the people who never met me, didn't have the chance to meet me, that they meet me. (Jaime, Pioneer Valley)21

Linda Singer suggests that we understand community "as the call of something other than presence" (1991, 125), the call to becoming**,** one might say. And the capacity for becoming is the talent we have perhaps been most actively fostering—through individuals opening to one another, and to the inescapable fact of their "own existence as possibility or potentiality" (*Agamben* 1993, 43). Indeed, this is how we might summarize our practices of cultivating local capacity. Almost every meeting and engagement associated with the project stimulated desires for alternative ways to be, and each of these desires operated as a contagion or revealed itself as a multiplicity.

What emerged, for example, from the awakening of a communal subjectivity was a faint but discernible yearning for a communal (noncapitalist) economy. This was not an easy yearning to stimulate or cultivate. The ability to desire what we do not know, to desire a different relation to economy, requires the willingness to endanger what now exists and what we know ourselves to be.22 Because they require a death of sorts, an offering up of the self to the unfamiliar, desires for existence outside the capitalist "order" are difficult to engender. When restructuring devastates a regional economy, unemployed workers may have little interest in economic alternatives. Instead they desire to be employed, to continue their social existence as workers. (As do we.) In the face of this fixation upon capitalism, we came to see that one of our tasks as researchers was to help set desire in motion again (not unlike the task of the Lacanian psychoanalyst). If we could release into fluidity desire that was stuck, perhaps some of it would manifest in perverse (noncapitalist) dreams and fantasies.

#### **The 1ac is an attempt to carve space for a non-capitalist understanding of subjectivity- this is the only way to reclaim the community**

**Community Economies Collective** (Brian Bannon, Carole Biewener, Jeff Boulet, Ken Byrne, Jenny Cameron, Gabriela Delgadillo, Rebecca Forest, Katherine Gibson, Julie Graham, Stephen Healy, Greg Horvath, Beth Rennekamp, et. al) **2001**

[“IMAGINING AND ENACTING NONCAPITALIST FUTURES” Socialist Review, Vol 28, Nos. 3 + 4 online @ http://www.communityeconomies.org/papers/rethink/rethinkp2imagining31.pdf, loghry]

Our conversations have ushered us into many hidden worlds of economy, only three of which we have explored here—the household-based neighborhood economy of AnnaMarie’s project, the gift economy brought to light by the community researchers and Anasuya, the communal economy of cooperative enterprises in Amherst and the conference in Cape Breton. **These “economies” are conceptualizations that give reality to lived experience** (just as, transitively, experience gives reality to such conceptualizations). **Talking about hidden and alternative economies is** for us **a way of nourishing the left imagination—**presenting what already exists as imaginative raw materials, but also practical building blocks; **circulating the language and affect that can produce subjects and tie bodies together in recognition and intimacy.** ¶ **As we pursue the brokering of alternative intelligibilities, we find ourselves frequently misunderstood** (understandably). ***People are dismissive and sometimes angry with us****.* When Stephen presented AnnaMarie’s work at a conference she was unable to attend, a young woman in the audience stood up and confronted him: “You’re going to celebrate the fact that my neighbor and I have to combine the food in our cupboards to feed our kids? You think that’s a good thing?” Identifying with the woman’s e xperience and wishing to honor her feelings and point of view, Becky later reflected on how we might explain ourselves to her: ¶ I don’t want to romanticize raising kids on a very small income—it’s something I do every day and find extremely difficult. At t he same time, I am angry that welfare reform treated households as if there was nothing going on there… you could just pull these women out of these households and put them in forty hour jobs, and act as if nothing is being displaced. **We want to recognize the labor that takes place in households and neighborhoods**, and the contribution that it makes—we want to acknowledge the parts of community livelihood that people value and want to maintain, and that a 40 hour work week might not support. But that’s not to deny that it’s difficult and painful to live on a very low income with a bunch of kids. ¶ When we speak of the vibrant and vital gift economy, people sometimes hear us saying, along with the right, that the welfare state can be dismantled because charity and volunteering (“a thousand points of light”) will provide a stopgap or a substitute. Here Paul has helped us understand and explain ourselves—Paul, who expresses his outrage that volunteering is necessary in this wealthy society yet at the same time portrays his own volunteer work as the source of his life’s great satisfactions. Without ¶ denying that the world is unjust and full of misery, Paul has oriented his life around generosity. Without suppressing his rage, indignation and sorrow, he pursues the passion and transformative joy that he finds in giving. (This bi-valent attitude seems to structure every aspect of his life, right down to his current job, where he fumes about the nepotism that has kept him from advancing and also cooks a fabulous meal for his coworkers each week.) His response to the world is not just anger but something additional, an antidote: “What can I do to help myself and help others?” ¶ **We are often accused of being optimistic, though none of us would predict a rosy future** (at least not generally). **Instead we are hopeful**, which is a very different thing. **We would like to extend the range of left emotions**—to include not just anger at what is, but pleasure in what we do, and desire for what might be. **Anger has been productive for the left—might not pleasure and desire be equivalently generative?** Can a politics of protest and rectification be supplemented by a politics of hope and cultivation? Is there room on the left for another way to be (we ask somewhat plaintively)? ¶ **Many of our interlocutors want us to provide lasting outcomes, visible effects, durability. But what might the “results” of conversation be? Conversation is movement, a zone of engagement, hard to reduce to the calculus of cause and effect.** Nevertheless **it affords the space for different languages of economy to circulate productively.** So that’s where we might start in answering our questioners: **language is the principal ingredient and major product of our conversational adventures. Without a language** in which to identify and name different economic practices, **we are at a loss when describing or performing noncapitalist activity, trying to carve out a discursive space for it.** A “politics of re-presentation” is a requisite for a different society and economy. ¶ **Language projects do not merely yield new domains of intelligibility, they are also conditions of political desire**. **Without a discourse of the diverse economy, our desire for a different relation to things economic is** inarticulate and unformed, perhaps **nonexistent.** So too the subjects of the alternative economy: **we are unborn, hidden even to ourselves, silent and alone in our invisibility.** ¶In producing a discourse of the diverse economy, Ernesto Laclau would say that **we are “widening the field of intelligibility in order to enlarge the scope of possibility.”** 32 But as Foucault and William Connolly have argued, **it is not enough to produce a new discourse of economy because “it is not just in the play of symbols that the subject is constituted. It is constituted in real practices” that “fix dispositional patterns of desire…by acting on the body.”**33 We are engaging in conversations not only to immerse our desiccated imaginations in the warm waters of language and conviviality; **we are** also **attempting to cultivate ourselves and others as subjects of something other than a capitalist economy.**