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## BMJ INVESTIGATION

# Stealing from the tobacco playbook, fossil fuel companies pour money into elite American universities

**Paul Thacker** examines how oil and gas companies have funded research to try to weaken messages on climate change and protect their interests

Paul D Thacker *freelance journalist*

At the turn of the century, a fresh crop of research centres to confront global warming began popping up at prestigious American universities. Promising a sustainable solution to the carbon and climate change problem, Princeton launched the Carbon Mitigation Initiative in 2000. Two similar programmes followed at Stanford in succeeding years: the Program on Energy and Sustainable Development (2001) and the Global Climate and Energy Project (2002). Massachusetts Institute of Technology's (MIT) Energy Initiative began in 2006, and University of California, Berkeley's Energy Biosciences Institute in 2007. Each initiative grew professorships and scientific research to tackle the climate change crisis caused by the burning of fossil fuels.

Ironically, the seeds for these academic centres were planted by fossil fuel companies. The obvious conflicts of interest—oil and gas companies funding research to end fossil fuel use—have caused researchers to cry foul and question whether the oil and gas industry—or any industry for that matter—can really be trusted to finance its own death.

## Repeating history

The fossil fuel industry's financing of universities echoes a scheme started by tobacco companies in the 1950s. Digging through records made public through lawsuits, Harvard historian Allan M Brandt found that tobacco companies resolved to “demand more science, not less” as a public relations strategy to counter research showing smoking was harmful.<sup>1,2</sup> In what he describes as “a public relations master stroke,” industry's plan involved capturing academics by becoming a primary funder of biomedical research, as “offering funds directly to university-based scientists would enlist their support and dependence. Moreover, it would have the added benefit of making academic institutions ‘partners’ with the tobacco industry in its moment of crisis.”<sup>1</sup>

In 1954, tobacco companies announced the creation of the Tobacco Industry Research Committee, a purportedly independent research group that funded university scientists to study the health effects of smoking. In reality, the committee was run by the public relations company Hill and Knowlton, with a board of academic advisers carefully chosen by this same PR company, which also vetted any research grants.<sup>1</sup>

Some documents confirm that energy companies had similar goals in mind when they began throwing

money at elite American universities. After learning from Exxon scientists that governments would regulate oil and gas companies to halt global warming, the French fossil fuel industry began funding studies on carbon uptake by oceans at Columbia University in the early 1990s, research that could make climate change seem less alarming.<sup>3</sup> They also began placing engineers at MIT and other institutions to monitor scientific work.<sup>3</sup>

In 1998, the American Petroleum Institute, the largest US trade association for the oil and gas industry, laid out a plan to defeat government action on climate change through a multimillion dollar programme, to be enacted over several years. Part of this plan was to create a centre with a board of climate scientists that would have the mission of advancing scientific uncertainty. “The center will be funded at a level that will permit it to succeed, including funding for research contracts.”<sup>4</sup>

When this proposed policy leaked to the media, the American Petroleum Institute denied implementing it. But two years later, in 2000, British Petroleum and Ford motor company donated a combined \$20m to Princeton to launch the first major programme at an American university to tackle climate change.<sup>4</sup> In 2020, Princeton extended its partnership with ExxonMobil to advance new forms of research on carbon capture technology, which attempts to collect the carbon dioxide released when fossil fuels are burnt and then store it underground.

ExxonMobil declined to say how much money it had given Princeton, as did Princeton. A Princeton spokesperson told *The BMJ* that the university has authorised a process to dissociate itself from fossil fuel companies that engage in climate disinformation campaigns.<sup>5</sup>

## Free of fossil fuel funding

In March last year, students at Stanford sent the university's president a letter that highlighted the fossil fuel industry's decades of deception on climate change and demanded that the university stop accepting research money from energy interests. “More recently, the fossil fuel industry realized that it could no longer support climate denial while maintaining credibility, so its denial strategy shifted to framing itself as the solution to climate change,” the students wrote in the student newspaper *Stanford Daily*.<sup>6</sup>

In their complaint, the students cited multiple Stanford programmes, including the Global Climate and Energy Project and Precourt Institute for Energy, that were started and funded by oil and gas companies such as ExxonMobil, Shell, and Total. “Stanford has accepted tens of millions of dollars from fossil fuel companies to conduct research since 2011,” the students wrote, citing Stanford’s database on research funds.

Hundreds of Stanford students, alumni, faculty, and staff began signing a separate open letter early this year calling on Stanford’s Doerr School of Sustainability to refuse fossil fuel funds.<sup>7</sup> Backed with a \$1.1bn gift from venture capitalist John Doerr, it will be Stanford’s first new school in 70 years, and it will eventually swallow other Stanford centres financed with fossil fuel money, such as the Natural Gas Institute.

“There’s a lot of this rationalisation that not all fossil fuel companies are bad,” says Celina Scott-Buechler, a Stanford graduate student who signed the open letter. She points out that many of the high profile scientists who signed come from Stanford’s medical school, where the culture is more aware of industry influence and supportive of research transparency.

Before she went to Stanford, Scott-Buechler worked for several years on climate change policy for a US senator and witnessed fossil fuel companies highlighting their funding of universities when asking congressional staff to change climate bills and water them down. “MIT and Stanford were the two that I saw the most frequently [cited] to say, ‘We are working on solutions. We’re committed to climate action.’”

Ben Franta, a Stanford student who is finalising his PhD on the history of climate disinformation, began writing essays about fossil fuel companies’ influence in academia several years ago. He claims that professors began criticising him for raising problems and possibly threatening their funding. “We can look at other examples of industries that have funded research related to their products,” Franta tells *The BMJ*. “Often the reasons are to obtain the trust of scientists, to paint themselves as part of the solution to the broader public, to keep an eye on what research is being done—even to influence what research gets done, what doesn’t get done.”

Stanford did not answer *The BMJ*’s questions and responded with a short statement that it is committed to unbiased research and that the dean of the Doerr School of Sustainability will partner with industry to tackle climate change.

Last June, faculty at the University of California at San Diego proposed a senate resolution requiring restrictions and special disclosures for all University of California research funding provided by the fossil fuel industry, similar to those in place for tobacco. “In the past decade, the “growing colonization of university space and other public institutions by energy corporations has been well established,” states the resolution. “Millions of dollars have been funneled into supporting industry-friendly research, work whose conclusions sometimes have been pre-determined by funders.”<sup>8</sup>

A supporter of the resolution at UC San Diego told *The BMJ* that faculty are now working to get the entire University of California to support system-wide rules that call for transparency on all industry funding, not just for energy companies.

## Draw of carbon capture

Many of those calling for their universities to cut ties with the fossil fuel industry cite carbon capture technology research as a prime example of the problem. It permits the notion that fossil fuel

consumption can continue unabated, because harmful greenhouse gases are sequestered and locked up underground.

At Stanford, researchers with the Global Climate and Energy Project studied how to lock up carbon as a stable mineral underground and are studying seismic technology to detect when future underground carbon storage sites might leak.<sup>9</sup> The university also hosts the Stanford Center for Carbon Storage, whose affiliate supporters have included oil and gas companies Chevron, ExxonMobil, Shell, and Schlumberger. For a \$100 000 annual membership fee, Stanford offers a host of perks, including attendance at weekly meetings and visits to meet faculty.<sup>10</sup>

When the Global Climate and Energy Project shut down after 17 years in 2019, the university thanked the funders, including ExxonMobil, Schlumberger, Bank of America, General Electric, Toyota, and DuPont.<sup>11</sup> Nonetheless, Stanford built on the fundraising success of the project to launch the Stanford Strategic Energy Alliance in 2018 with \$20m from ExxonMobil.<sup>12</sup>

At Berkeley, ExxonMobil scientists collaborate on discovering new materials that enhance carbon capture technology. Last summer, the company and academic team used a Berkeley press statement to announce a new material that could capture more than 90% of carbon dioxide emitted from industrial sources. The Berkeley statement ended with further promotion for ExxonMobil, detailing the company’s \$10bn investments in low emission energy and collaboration with more than 80 universities.<sup>13</sup>

When *The BMJ* asked about these documents and why Berkeley continues to pour money into carbon capture research, a spokesperson wrote, “The scientists who made and make funding decisions enjoy full academic freedom and were/are clearly not swayed by ExxonMobil’s perspectives.”

## Carbon capture dreams

With so much academic research funded by fossil fuel companies focused on capturing carbon, how promising is the technology? Last November, Tufts University professor Neva Goodwin co-published an essay arguing that carbon capture is the latest ploy by the fossil fuel industry to delay action on climate change. “We have watched mechanical carbon capture methods struggle to demonstrate success, despite US government investments of over \$7bn in direct spending and at least a billion more in tax credits,” Goodwin wrote.<sup>14</sup>

Academics argue that carbon capture is scientifically feasible but does not make economic sense.<sup>15 16</sup> As evidence, they cite research that has found removing 1 gigaton of carbon dioxide every year—about 3% of global carbon emitted by human activity annually—requires about the same amount of electricity as the US generated in 2020.<sup>14 17</sup>

“There’s never, under any circumstances, any benefit of using carbon capture equipment,” said Stanford professor of engineering Mark Jacobson in a recent talk. “It’s just a tax on low income people because they pay the highest fraction of their income on electricity.”<sup>18</sup>

Jacobson also examined the only coal fired energy plant in the US that used carbon capture technology. The equipment cost \$1bn and burnt gas to capture the carbon from the coal combustion. Jacobson added that additional carbon had to be burnt to build the machinery and mine the coal, and this does not account for the harms caused by air pollution.

Jacobson describes research in the field as a “smokescreen” that distracts from solutions. “Renewables are the only option,” he tells

*The BMJ*. “We need to focus on what works.” Companies, Jacobson says with a laugh, poured millions of dollars into universities to discover carbon capture technologies that still do not exist today. “That’s what they did.”

Ironically, more than 40 years ago Exxon scientists found that while carbon capture may work technically, it fails economically as the energy required to capture and transport the carbon to underground storage is too expensive.

Back in 1981, Exxon developed an internal report that examined how climate change would affect Exxon’s business and “in recognition of the fact that atmospheric CO<sub>2</sub> is a global environmental concern.”<sup>19</sup> Reporters discovered this document in 2015.<sup>20</sup>

One section of Exxon’s report discusses how the company has few options if the government introduces laws to control carbon dioxide because of the “exorbitant” costs of capturing it during fossil fuel combustion. “Indirect control measures, such as energy conservation or shifting to renewable energy sources, represent the only options that might make sense,” Exxon concluded.<sup>19</sup>

In a 1989 internal report that also became public in 2015, a senior Exxon executive explained to the company’s board a strategy to counteract awareness of the climate crisis and delay government regulation of greenhouse gases. This strategy called for highlighting scientific uncertainty, emphasising economic costs and efforts to “extend the science” or continue research.<sup>21</sup>

When asked about its internal documents denigrating carbon capture, as well as statements by a former chief executive also disparaging carbon capture and storage, an ExxonMobil spokesperson told *The BMJ* that the company is focused on achieving net zero greenhouse gas emissions with investments in carbon capture and storage, hydrogen, and biofuels. “We fund research at universities and for projects that align with society’s net zero ambitions,” they wrote, citing collaborations with Stanford, Princeton, and UC Berkeley.

Still, more than 80% of projects attempting to commercialise carbon capture and storage have failed, and MIT closed its carbon capture and sequestration technologies programme in 2016, after none of its several dozen projects had been commercially successful.<sup>22 23</sup>

Meanwhile the movement on campus against fossil fuel funding is growing. “Young people don’t want to work in a lab that is funded by oil companies because these young people want to solve climate change,” says Stanford’s Franta, who recently joined the faculty at the University of Oxford. He said that climate scientists at elite universities have normalised financial relationships with oil and gas companies, and he expects universities to resist efforts to remove fossil fuel funding. “The universities that do that are going to see their reputations decline,” he tells *The BMJ*. “This is going to be an issue that is not going away.”

### Gas sponsored research launches US fracking boom

Fossil fuel money can serve as much more than an alleged research distraction. In at least one case, fossil fuel funded academics shifted national policy.

In 2011, MIT’s Energy Initiative released a report that found natural gas could replace coal by “reducing carbon dioxide emissions, acting as a ‘bridge’ to a low-carbon future.”<sup>24</sup> The report dismissed a study by Cornell researchers<sup>25</sup> that found natural gas was actually more harmful to the climate because of methane leaks.<sup>26</sup> Bolstered by the MIT study, the narrative that “gas was green” took hold in the US. The next year, President Obama referenced the findings in his State of the Union

address, and MIT’s Ernest Moniz, who oversaw the report, was appointed secretary of energy, kicking off a fracking boom.<sup>26</sup>

Today, we know that report had many flaws. “Natural gas has been portrayed as a bridge to the future,” wrote medical experts in a 2020 essay in the *New England Journal of Medicine*. “The data now show that it is only a tether to the past.”<sup>27</sup>

In a recent documentary, Moniz refused to discuss the report’s flaws or its funding, which he called “transparent.”<sup>26</sup> The report’s major funder, it turned out, was a non-profit started by the natural gas industry.

In response to questions from *The BMJ*, MIT stated that it stands behind the 2011 paper, adding that gas will continue to serve an important role in helping to deploy and support solar and wind energy sources. However, many experts contacted for this article cite the MIT paper as an example of fossil fuel companies funding research to protect their products, much like tobacco did half a century ago. “It’s exactly like that,” said Mark Jacobson, from Stanford. “The key is to counter it.”

Editorial note: More than 30 years ago, an editorial in *The BMJ* warned about the negative impacts of climate change on health (doi:10.1136/bmj.302.6778.669). And in 2020, *The BMJ* launched a campaign calling for divestment from fossil fuels (<https://www.bmj.com/divestment>).

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