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An Unconventional Talk on Unconventional Oil and Gas

A complicated topic made even more so by competing interests, unintended consequences and uncertainty, unconventional oil and gas production is one of today's most controversial issues. Lauded for its potential for freeing the country of its dependence on imported fossil fuels and growing the United States' battered economy, the relatively new method of extracting petroleum-based fuels has also come under fire for its environmental degradation and toxic effects.

On Thursday evening, experts from different sides of the issue gathered at UC Santa Barbara's Pollock Theater for a spirited and frank discussion on the phenomenon of unconventional oil and gas. And their viewpoints weren't as cut-and-dried as one might expect for such a lightning-rod topic. Moderated by television journalist Jeff Greenfield, veteran of ABC, CNN and PBS news programs, the panel consisted of Marcia McNutt, editor-in-chief of the journal Science; Steven Hamburg, chief scientist for the Environmental Defense Fund; Nancy Pfund, venture capitalist, impact investor and founder of San Francisco-based DBL Investors; and Tupper Hull, Western States Petroleum Association vice president of strategic communications.

"The whole issue of unconventional oil and gas has many, many dimensions," said David Auston, director of UCSB's Institute for Energy Efficiency, which sponsored the event in its ongoing effort to educate and inform the public about this complex issue. "We will only cover a small part of that tonight."

That small part turned out to be the big issue of fracking, or hydraulic fracturing, a process by which a mixture of sand, water and chemicals is injected at high pressure into shale to break the rock and release oil or gas. Once overlooked because of the effort and expense involved in producing fuel from these rock formations, shale beds all over the country are now being eyed as major energy sources thanks to fracking.

According to the panel, done properly, fracking has been touted as a means of accessing large deposits of natural gas, a cheaper and cleaner fuel than coal and a cheaper and easier process to employ than nuclear power. Fracking operations have also generated jobs and income in areas hit particularly hard by the economic downturn and strengthened the nation's energy portfolio. However, the method is fraught with its own side effects: increased methane release into the air, man-made tremors and disrupted habitats on the ground and contaminated water tables under the earth. The issue is further complicated by politics, with the Obama administration's current efforts to use the boom in American natural gas to undercut Russia's energy hold on the Ukraine and Europe.

One concept the entire panel agreed upon is the need to make renewables a major source of energy, whether because of their cleaner production and use, or the finite nature of fossil fuels, or the potential returns on investment. What was up for debate, however, was how long it would take to get there and how fracking should be managed in the meantime.

"Here in this state, we have a point of view that has become the conventional wisdom among a lot of the environmental groups that this is a technology that is so inherently dangerous that it cannot be regulated; that it has to be prohibited," said Hull, who found himself "baffled" at what for him and others in the petroleum industry amounted to a not-so-exotic process that was subject, like any other industrial process, to risk management and regulation.

As a means of getting to renewables, Hamburg noted that natural gas was the lowest carbon fossil fuel, and as such, should be used until renewables technology is mature enough to become the major source of energy.

"But you've got to get it right," he said, adding that carbon containment measures and stricter regulations should be employed alongside the hydraulic fracturing, a point he continued to make throughout the discussion.

Meanwhile, McNutt said she wouldn’t risk buying a home near fracking operations due to concern for the landscape modification and the potential for water contamination. However, she pointed out that the highly publicized water table contamination of the type reported near well sites in Dimock, Pennsylvania a couple of years ago is less likely a problem than the above-ground type that results from leaks, blown valves and poorly maintained equipment, conditions she said were “probably solvable.”

Pfund, however, said she doesn’t see as great a need for fossil fuel in the coming years as the others do. Given the outcry, litigation and increased regulation surrounding the technology, as well as the greater efficiency and lower price tags for renewables such as solar power, market forces could wind up squeezing unconventionally produced gas and oil out sooner than later.

“That’s not a curve you invest on,” Pfund said. “You want your cost coming down, you want your growth going up and you don’t want a lot of political angst.”

But the level of angst over fracking differs around the country. In New York, for instance, ending the ongoing moratorium on fracking could be political suicide, while in Texas, energy interests have a closer relationship with the political powers that be. California’s situation is unique as well; as one of the world’s largest consumers of fossil fuel, it is also at the leading edge of energy policy. What happens in California tends to spread across the country and to the world.

Perception and geologic differences are also key facets of the debate on fracking. East of the Rocky Mountains, McNutt pointed out, microseismic events — little earthquakes generated not by fracking itself but from the disposal of too much wastewater in deep wells — could be prevented simply by not injecting as much of the waste in them. The tiny earthquakes are of concern mainly because they’re happening in places where they don’t usually occur, she said. In earthquake-prone California, these induced tremors could be more of an issue.

Hull, however, was quick to point out that the nature of oil production in California makes these induced quakes less of an issue than it is in other places. Because California’s reservoirs produce large amounts of water alongside oil, he said, there is room for large amounts of produced water to be returned to the ground, as opposed to sites where copious amounts of wastewater are dumped into places with less capacity for water in the first place.

Looking into the general future of fracking — even in the near term — could be a difficult prospect, because of the diversity of conditions under which hydraulic fracturing takes place, and the priorities of individual regions. As Pfund pointed out, California has relatively more options for energy than other parts of the country, where, for example, solar power would not be viable. The realities of local economies also play a huge role in deciding whether or not to frack.

“Energy and energy policies have real consequences for people,” said Hull. “Energy costs and energy availability are very real issues in day to day life.”

In addition, political will could alter the direction fracking takes. Right now the natural gas boom in America puts it in a position to leverage its natural gas supplies against Russia’s plan to squeeze the Ukraine by freezing its gas supplies or making them unaffordable. Locally, the size and diversity of the United States make it more difficult to embark on wholesale shifts to renewables, such as the one Germany has made toward wind energy.

However, the scientists on the panel did suggest some action could be taken now, regardless of where fracking goes in the future. McNutt called for better baseline measurements of conditions prior to oil and gas extractions in those areas. Fracking-induced earthquakes could occur in places where unknown faults exist, and debates rage between proponents and opponents on the effects of the technology because baseline data for comparison is lacking. She also urged the audience to be more aware of the energy choices they make.

“Anything we choose to do has consequences, and it is really up to you as the public to become informed about what the impacts are of all your energy choices and decide what you feel comfortable with,” she said. Even the infrastructure needed to build wind or solar energy could have impacts to local wildlife. We do need a bridge between fossil and renewable fuels, she added, “but the bridge can’t be a crutch.”

Meanwhile, Hamburg stressed the immediate need to de-carbon — remove or contain the carbon emissions from fracking and other oil and gas operations — in order to decrease the effects of carbon-containing methane (natural gas) and other greenhouse gases in the environment.

“We need the regulations to reduce methane emissions right now,” he said. “It’s the most powerful thing that could be done in the short-term to reduce the rate of warming.”

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