

# Alternative-energy innovations on display

March 6 2012, By Jim Landers

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Climate change is in dispute. Oil and gas are staging a comeback. Republicans are questioning federal funding for energy research as a waste of money in a time of deficits.

In this fraught atmosphere, more than 3,000 academics, entrepreneurs and scientists gathered here this week to peer into the future of [alternative energy sources](#) like wind, solar and biofuels.

The meeting, which ended Wednesday, was dubbed an energy innovation summit. It was sponsored by the Department of Energy's Advanced Research Projects Agency-Energy. ARPA-E, as it's known, is a sister [technology incubator](#) to the Defense Department's [Defense Advanced Research Projects Agency](#), which created the Internet.

ARPA-E was launched in 2007, when the country seemed to be exhausting its oil and natural gas resources and when climate change seemed to have more urgency in policy circles. ARPA-E got \$400 million in the 2009 [economic stimulus](#) law to fund [energy projects](#).

Massachusetts Institute of Technology President Susan Hockfield summed up the changes in a speech.

"Without policy, without subsidies on our side, how do we reach a clean-energy future?" she asked. "We really need to tune it up, stem to stern."

The innovations on display at the conference seem remarkable. Sheetak, an Austin, Texas, company aided by ARPA-E funding, unveiled a new

approach to cooling that fits the transformed workings of a compressor onto a circuitry board the size of a credit card.

Plant biologists from Texas A&M University showed off algae they've cultivated that create hydrocarbons that can be used as fuel.

Envia Systems of Newark, Calif., announced completion of a lithium-ion battery with nearly three times the storage capacity of current state-of-the-art batteries used in hybrid cars.

More than 300 exhibitors showed off their ideas at the meeting, which took place at a resort just south of Washington.

Former President Bill Clinton was Wednesday's keynote speaker. He lamented the loss of momentum behind dealing with [climate change](#), but advised conference attendees not to resist new developments for conventional fuels. Clinton said hydraulic fracturing would be supported if it's done safely.

"Try to remove the ambivalence about natural gas," he said. "We're going to take that fuel out of the ground."

The tremendous surge in U.S. [natural gas resources](#) was discussed at the conference. The panel concluded that renewables must find a way to compete with the new gas resource base, and that energy companies are likely to invest heavily in gas-to-liquids technology as long as oil prices remain high.

But the panelists also warned that gas producers still need to convince the American public that they are not degrading the environment with methane emissions, water contamination and other unsound practices.

"This is the biggest deal that's happened in U.S. energy in the last half-

century. It will have a tremendous impact on every aspect of our energy economy," said John Deutch, an MIT chemistry professor. He is also head of a special Obama administration group that examined the environmental consequences of shale gas development.

"But there is a very real danger that public concern about unconventional gas and oil is going to slow, and possibly even stop, this opportunity."

Clinton said he expected the Keystone XL Pipeline designed to bring oil from Canada to the Texas Gulf Coast would eventually win approval from President Barack Obama once a new path is found that avoids the Sandhills area of Nebraska.

"We should embrace it and set a high standard for the work," he said.

Republicans have challenged the Obama administration over the stalled pipeline, and over federal regulations they blame for slowing development of oil and gas deposits on federal lands and offshore.

Last month, Senate Minority Leader Mitch McConnell, R-Ky., ridiculed Obama for lauding research on algae as an answer to higher gasoline prices.

"I think the American people realize that a president who's out there talking about algae - algae! - when we're having to choose between whether to buy groceries or fill up the tank is the one who is out of touch," McConnell said.

Meanwhile, Democratic Sen. Jeff Bingaman of New Mexico, chairman of the Senate energy committee, lamented Republican opposition that has stymied extension of federal tax credits for wind power.

"We will probably see a major retrenchment all along the chain in the

wind energy industry this year, with the loss of thousands of jobs," he said.

MIT's Hockfield said energy researchers should partner with industry to speed advances into the market, and focus on reducing costs. She said some of that could come from redesigning manufacturing to lift the nation out of a 1960s model of production.

She admonished the audience, however, not to rely on old research approaches in which she said scientists worked in silos detached from each other and the private sector.

"We had 30 years of 20th-century energy research with remarkably few [energy](#) innovations," she said.

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Citation: Alternative-energy innovations on display (2012, March 6) retrieved 18 April 2024 from <https://phys.org/news/2012-03-alternative-energy.html>

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