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AAPG

ARPA-E – Not a Typical Research Effort

By DAVID CURTISS, GEO-DC Director

It should come as no surprise that here at GEO-DC we spend a lot of time talking about energy and the future of energy. Our basic objective is to help people understand that oil and natural gas, which currently comprise nearly 65 percent of U.S. energy, provide the fuel and power needed for economic growth and jobs.

But while fossil fuels are the foundation of global energy – and will remain so for many decades, perhaps longer – we can expect alternative and renewable energy sources will continue to grow in importance. And it is possible that a scientist or inventor will make a technological breakthrough in coming years that transforms the energy sector.

The Advanced Research Projects Agency – Energy (ARPA-E) is looking for that potentially "disruptive" energy technology.

ARPA-E was authorized as an agency within the U.S. Department of Energy in the America COMPETES Act of 2007. But, like many government programs, it was created and received no funding (see January Washington Watch) until passage of the American Recovery and Reinvestment Act of 2009.

The stimulus bill provided $400 million to launch the agency, whose mission is "to fund projects that will develop transformational technologies that reduce America's dependence on foreign energy imports; reduce U.S. energy-related emissions (including greenhouse gasses); improve energy efficiency across all sectors of the U.S. economy and ensure that the U.S. maintains its leadership in developing and deploying advanced energy technologies."

But ARPA-E is not meant to be a typical government research effort.

It's modeled after DARPA, the Defense Advanced Research Projects Agency within the U.S. Department of Defense. DARPA was created in the late 1950s to respond to Soviet technical advances, such as the launch of Sputnik, at the onset of the Cold War.

According to Richard Van Atta of the Institute for Defense Analyses, DARPA has changed and evolved since its founding. It is a highly "agile" organization that is not risk averse, focused on "high-risk, high-reward" research. Its focus is "idea driven and outcome oriented."

DARPA's investment strategies more closely resemble those of venture capitalists than traditional government R&D programs. And that is how Energy Secretary Steven Chu, himself a

Nobel Prize-winning physicist, describes the goal of ARPA-E in funding high-risk, high-reward research.

Using a baseball analogy he says they're asking scientists to swing from the heels. Some will strike out. But other scientists will hit home runs and some will hit grand slams.

The research portfolio is broad. Program topics that ARPA-E is funding range from conventional energy and carbon capture to vehicle technologies and biomass energy.

There have been two funding rounds since the agency launched. The first encompassed many forms of energy; the second is more focused. Competition in round one was fierce, with only 1 percent of proposals submitted selected for funding.

Affordable Power From Water and Sunlight is the title of one funded project being conducted by Sun Catalytix Corporation. The firm is using sunlight and a catalyst discovered at the Massachusetts Institute of Technology to separate hydrogen and oxygen from either tap water or clean seawater. The science is proven. But ARPA-E funding will enable them to improve performance and develop prototype devices with an eye on commercial deployment.

If successful, the project will deliver an affordable renewable energy storage device that could be used in both off-grid and on-grid installations.

Sunlight and the catalyst split water molecules into hydrogen and oxygen suitable for use in a fuel cell to generate electricity. It is an elegant way to "store" solar energy – if it works as intended and can be deployed as cheaply as expected.

But the path of any new technology is typically bumpy, leading through the dreaded "valley of death," as it tries to move from successful lab bench prototype to commercially viable product. The benefit of ARPA-E funding over private capital at this stage, according to Sun Catalytix, is that they can focus on improving technology rather than raising additional money.

"Our nation's history is replete with examples of pioneers and entrepreneurs who took risks, said ARPA-E Director Arun Majumdar. "These innovators often failed initially, but quickly learned from those failures, competed against each other and innovated in both technology and business to create the largest industrial base the world has ever seen.

"ARPA-E's goal is to tap into this truly American ethos, and to identify and support the pioneers of the future."

ARPA-E is engaged in a daring enterprise, and more information about the funded projects is available on the agency website (http://arpa-e.energy.gov).

GCAGS

(2) SB788 - 2010 Regular Session
Status: PENDING HOUSE FLOOR ACTION
Louisiana legislature considering geologist registration bill, along lines of Texas regulations.

2010-2011 GCAGS SCHOLARSHIP FUND-MATCHING PROGRAM

The GCAGS has established a new scholarship fund-matching program in order to provide incentive to its Affiliated Societies to raise funds for their registered scholarship foundations. The GCAGS will match, on a one-to-one basis, newly raised scholarship funds up to a total of $10,000 per Society, except for the Houston Geological Society, which will be allowed to receive matching funds up to $10,000 for each of its two separate registered scholarship foundations. The program began on January 1, 2010 and will run through June 30, 2011.

If you are interested in helping provide financial aid to university geoscience students in your area, please contact your local Gulf Coast Affiliated Society to learn about its scholarship foundation and how you can double the value of your donation to it by taking advantage of the GCAGS Scholarship Fund-Matching Program.

SEG

News & Announcements

- Legendary geophysicist, Tury Taner, remembered
- The 2010 US Department of Energy Ultra-Deepwater and Unconventional Natural Gas Plan
- Houston 2009 Annual Meeting photos available for download and sale
- SEAM workshop presentations

SPE

Gulf of Mexico spill

The Society of Petroleum Engineers wishes to express its concern for all those impacted by the oil spill in the Gulf of Mexico and support for our colleagues who are working to resolve this situation. Updates on the situation are provided at the following locations: BP, Deepwater Horizon Response and API Gulf spill.

SPE.org offers regional news, information

SPE.org now offers pages dedicated to three regions of the world, with more to be launched in the coming weeks. Current pages cover **Canada**, **Europe and Sub-Saharan Africa**, and **Russia and Caspian**. To better serve members, the Russia and Caspian site includes content in Russian.

These pages offer a single place to view upcoming events in the area, local information, specific news from sections, young professionals, students, and more.

ATCE to be held outside U.S.

For the first time, SPE's flagship meeting—the Annual Technical Conference and Exhibition—will be held outside the United States. Join us in Florence to share technical knowledge, network with colleagues from around the world, and celebrate key successes in the E&P industry. Registration and housing is now open.

Upcoming SPE Events Worldwide

United States and Canada

- ***Meet Me At The Wellhead-Enhancing the Value Chain in Offshore Installations***

  20 - 25 Jun | Park City, Utah, America

- ***Petrophysics Meets Well Testing***

  27 Jun - 2 Jul | Colorado Springs, Colorado, USA

- ***Geosteering Technology***

  27 Jun - 2 Jul | Colorado Springs, Colorado, USA

- ***SPE/AAPG/SEG Quantitative Interpretation: Reducing Uncertainty through Intergration of Petrophysics, Geophysics, Geomode***

  29 - 30 Jun | Denver, Colorado, United States