DOE Chooses Advanced Energy Research Projects

Jim Lane Biofuels Digest *[1] — October 27, 2009*

In California, Secretary of Energy Steven Chu announced that ARPA-E [2] — the Department's recently-formed Advanced Research Projects Agency-Energy — has awarded $151 million in funding for 37 research projects. Among awardees:

University of Minnesota. Direct Solar Fuels Production of liquid hydrocarbon transportation fuels directly from sunlight, water and CO2 using an artificial symbiotic colony of photosynthetic cyanobacteria and Shewanella, a hydrocarbon producing bacteria. $2.2 million. **United Technologies Research Center**. Carbon Capture Synthetic enzymes for capturing CO2 from coal plant flue gas streams. Uses a synthetic form of the enzyme carbonic anhydrase, which our bodies use to remove CO2. Could dramatically reduce the cost of carbon capture. $2.2 million.

Agrivida. Biomass Energy Cell wall-degrading enzymes grown within the plant itself that are activated after harvest, dramatically reducing the cost of cellulosic biofuels and chemicals. $4.565 million.

Ceres. Biomass Energy Genes that enable energy crops to produce more biomass using less land (and lower quality land), less water, and less fertilizer than standard energy crops. This approach would provide sustainable biofeedstocks to displace oil and coal for fuels and power production. $4.989 million.

DuPont. Biomass Energy Production of bio-butanol, an advanced biofuel, from macroalgae (seaweed). Seaweed is a potentially sustainable and scalable new source of biomass that doesn't require arable land or potable water. $9 million.

RTI (and ADM, ConocoPhillips, Albemarle) *Biomass Energy* A single-step catalytic biomass pyrolysis process with high carbon conversion efficiency to produce a stable bio-crude "oil" with low oxygen content. The approach combines pyrolysis oil production, stabilization, and upgrading into one process. $3.11 million.

Univenture (and Rockwell Automation, Ohio University, Case Western) *Biomass Energy / Direct Solar Fuels*. A novel algae harvesting system that could dramatically reduce the energy cost necessary to harvest, dewater, and dry algae by using a novel absorbent moving belt harvester. This technology offers the potential to transform the economics of algae-based biofuel production by removing a major barrier to large scale commercialization.

More than 3,600 concept papers were received for the first set of awards, according to the DOE. A second group of awards will be made in the fall.

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[1] http://www.biofuelsdigest.com/blog2/2009/10/27/arpe-e-awards-151-million-in-advanced-energy-rd-pyrolysis-algae-butanol-co2-capture-among-hot-technologies-funded/
[2] http://www.arpa-e.energy.gov