At Google, Chu announces grants for 'out-of-the-box' global warming projects

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Fulfilling a campaign pledge to tap Silicon Valley innovation to combat global warming, Energy Secretary Steven Chu announced Monday at Google's headquarters the first federal grants for high-risk, high-reward clean-tech ventures -- including revolutionary technologies like using bacteria to create gasoline.

"We are trying to hit home runs, not base hits," Chu said. "These are out-of-the-box approaches."

The administration's initiative drew cheers from the valley's clean-technology community, which sees federal funding playing a critical role in getting basic research off the ground, paving the way for entrepreneurs and venture capitalists to take those ideas and turn them into multibillion-dollar companies.

"This is going toward more fundamental, early-stage research -- something venture capitalists may not be interested in," said Herman Lopez, director of materials development at Hayward-based Envia Systems, which garnered a $4 million grant for its work to create high-density lithium-ion batteries for hybrid vehicles, electric cars and electronic gadgets.

Chu made his announcement at the Googleplex in Mountain View, signaling that the Obama administration is looking to duplicate with clean tech the kind of convention-breaking ideas Silicon Valley -- and the innovative search engine company -- is known for in other areas of

technology.

The grants are being directed through the Advanced Research Projects Agency-Energy, or Arpa-e, a relatively new organization modeled after a Defense Department program known as Darpa. Darpa pumped resources into high-risk military research ventures. Some of its funding, for example, backed research that became the backbone of the Internet.

The new agency received initial funding of $400 million through the federal stimulus act. Last week, the Senate approved Arun Majumdar, a scientist at the Lawrence Berkeley National Laboratory, to head up the organization. In all, 37 grants were handed out to small business, research groups and large corporations in the first round of funding for a total of $151 million.

Awards included $2.2 million to University of Minnesota researchers working on organisms that use sunlight to convert carbon dioxide into sugars, and another organism to create gasoline and diesel from the sugars; and $9 million to du Pont to produce an advanced biofuel from seaweed.

"These ideas are potentially revolutionary," said Chu, a Nobel prize winning physicist who previously headed the Lawrence Berkeley Lab. "They are highly risky. The higher the risk, the higher the reward."

Chu added that he'll call the program a success if three of the 37 projects, picked from a pile of 3,700 competing projects by 500 volunteer scientists, work.

Each grantee had to include an exit strategy, of sorts -- a plan to tap other government agencies for future funds, a path to the doorsteps of venture capitalists and eventually a business plan. "Some of the stuff was pretty pie-in-the-sky," said Carrie Armel, a research associate at

Stanford University's Precourt Energy Efficiency Center, whose work to help people easily monitor home and office energy use in order to conserve energy won an award of nearly $5 million. But Arpa-e administrators "are definitely keeping their eyes on applications."

Many of Silicon Valley's leaders have called for more basic energy research to ensure the United States remains the undisputed leader in high-tech, this time in clean technologies. Chu echoed that concern, pointing out the aggressive efforts of other countries, including China, to dominate "the second industrial revolution." China, for instance, has committed to spend $100 billion a year in clean-energy research.

And Japan currently leads in advanced battery technology. Lopez, of battery maker Envia, said "Arpa-e is enabling technology that will give the leadership (in lithium-ion) batteries back to the United States."

Kleiner Perkins Caufield & Byers partner John Denniston has called Arpa-e funding a critical first step. He and others in the valley would like to see the federal government spend as much on basic energy research every year as it does on medical research through the National Institutes for Health, about $30 billion in annual funding. "At the moment, the United States has the technological leadership in green tech," he said in an interview earlier this year. "The risk for Silicon Valley is that we lose our leadership if we don't have policy leadership."

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