



RE-ENERGYSE Summary

March 2010

What is RE-ENERGYSE?

Over the last several years, a growing number of experts have called for a federal program to promote advanced clean energy education and workforce development. In April 2009, President Obama responded by proposing RE-ENERGYSE (REgaining our Energy Science and Engineering Edge), the first national energy education initiative to inspire and train young Americans “to tackle the single most important challenge of their generation — the need to develop cheap, abundant, clean energy and accelerate the transition to a low carbon economy.”

RE-ENERGYSE is part of administration’s FY2011 budget request and would represent the first comprehensive federal program for clean energy education. With oversight by the Department of Energy and National Science Foundation, it would educate thousands of clean energy scientists and engineers, beginning with \$74 million for energy-related programs at universities, community and technical colleges, and K-12 schools. It would also include targeted support for under-represented populations and applicants attending Minority Serving Institutions.

Why is it important?

The United States is quickly falling behind in the global clean energy industry, and our educational system and workforce is unprepared to compete. According to the Department of Energy, “The U.S. ranks behind other major nations in making the transitions required to educate students for emerging energy trades, research efforts and other professions to support the future energy technology mix.”

The U.S. energy industry expects a 40 to 60 percent retirement rate over the next five years, the majority of our colleges lack degree programs focused on energy, and several key power engineering programs are in decline. Meanwhile, other countries are graduating a substantially larger portion of engineers and researchers that will benefit their clean-tech industries. Science and engineering make up only about one-third of U.S. bachelor’s degrees, compared to 63 percent in Japan, 53 percent in China, and 51 percent in Singapore. Between 1995 and 2006, the number of Chinese researchers nearly tripled to more than 1.4 million, on par with the United States.

The energy workforce deficit and STEM education gap could significantly limit the nation’s ability to lead the clean-tech industry and accelerate clean energy development. The federal government has started to address the need for green technician training, such as through the Green Jobs Act, but it has not implemented the higher education strategy we need to keep the U.S. at the leading edge of energy science, technology, and entrepreneurship.

Who supports RE-ENERGYSE?

In 2009, a group of over 100 leading universities, colleges, professional associations, and student organizations wrote a letter urging Congress to appropriate RE-ENERGYSE. “RE-ENERGYSE is an innovative program that will train America’s future energy workforce, accelerate our transition to a

prosperous clean energy economy, and ensure that we lead the world's burgeoning clean technology industries," they wrote.

"The issues of energy and climate change are inspiring the interest of students... across the country," stated Robert Berdahl, president of the Association of American Universities. "RE-ENERGYSE is the kind of program we need to capture that enthusiasm... Just as NASA inspired students to take an interest in science and space, the Department of Energy should develop and support new education programs aimed at encouraging and supporting students in energy-related fields."

This year, in addition to an organizational letter, students across the country are mobilizing behind RE-ENERGYSE, including dozens of student government presidents representing hundreds of thousands of American students. "We believe it is a critical step toward creating new energy industries and jobs while regaining American leadership in the global clean energy industry," their letter states. These students will be engaging Congressional offices in April and May.

Proposal Summary:

RE-ENERGYSE would be coordinated by the Department of Energy and National Science Foundation, beginning with an initial investment of \$74 million in clean energy-related education at universities, community and technical colleges, and K-12 schools. This will include a new \$50 million program within DOE's Office of Energy Efficiency & Renewable Energy, a \$5 million program in DOE's Office of Nuclear Energy, and a \$19 million program within NSF. A summary of each is included below.

DOE's Office of Energy Efficiency & Renewable Energy summarizes its program as follows: "RE-ENERGYSE will develop leading edge undergraduate and graduate programs; help between 3,000 and 6,000 highly educated scientists, engineers, and other professionals enter the clean energy field by 2016; and approximately 7,000 to 13,000 professionals by 2021. By 2016, efforts will result in the development of approximately 75 community college and other training programs to equip thousands of technically skilled workers for clean energy jobs. By 2016, thousands of U.S. residents and students will be educated about clean energy technologies and cost saving benefits [from energy efficiency]."

DOE's Office of Nuclear Energy summarizes its program as follows: "This program will provide important educational support to bolster nuclear engineering and science programs at U.S. universities, which supports continued use of nuclear power... RE-ENERGYSE supports university nuclear engineering programs through scholarships and fellowships. These fellowships will complement existing Federal efforts and will help ensure that the next generation of scientists and engineers are available to support existing and future nuclear energy generation capacity and provide necessary innovation... In FY 2011, the RE-ENERGYSE program plans to fund approximately 88 one-year scholarships and 30 three-year fellowships to students enrolled in nuclear energy-related fields of study of disciplines at U.S. universities and two-year colleges."

National Science Foundation summarizes its program as follows: "In FY 2011, NSF will invest roughly \$19.0 million in RE-ENERGYSE through five existing research and education programs that help develop the future STEM workforce. These programs provide fellowships, traineeships, and research opportunities for undergraduate and graduate students, as well as build collaboration between academia and industry. NSF will contribute at least 5 percent of its support for the following programs towards specific, energy-related awards: Graduate Research Fellowship (GRF); Graduate STEM Fellows in K-12 Education (GK-12); Integrative Graduate Education and Research Traineeship (IGERT); Support for community colleges through Advanced Technological Education (ATE); and Research Experiences for Undergraduates (REU) sites."

More information is available here: <http://leadenergy.org/reenergyse/resources>