



The Secretary of Energy
Washington, DC 20585

September 24, 2013

MEMORANDUM FOR THE CO-CHAIRS
SECRETARY OF ENERGY ADVISORY BOARD

FROM: ERNEST J. MONIZ

A handwritten signature in black ink, appearing to read "Ernest J. Moniz", is written over the name in the "FROM:" line.

SUBJECT: Establishing a Task Force to Support the Evaluation of the New Funding Constructs for Energy Research and Development (R&D) in the Department of Energy

I request you form a SEAB Task Force (TF) composed of SEAB members and independent experts with experience in energy research (basic and applied), as well as the process of technology transfer to industry, to assist the DOE in evaluating the management and early progress of the new management and funding mechanisms in the Department: Energy Frontier Research Centers (EFRCs), Energy Innovation Hubs (Hubs), Bioenergy Research Centers (BRC), and the Advanced Research Projects Agency-Energy (ARPA-E). The deliverable of the Task Force is a brief written report that provides suggestions to the Department to enhance their future success, due in March 2014.

Purpose of the Task Force: Over the past six years, the Department of Energy has introduced several new energy R&D management and funding mechanisms, designed to complement each other, with the goal of maximizing the Nation's ability to achieve energy breakthroughs as quickly as possible.

- Energy Frontier Research Centers (EFRCs) focus on fundamental science and support multi-year, multi-investigator scientific collaborations focused on one or more science and energy research grand challenges. Typical awards are \$2 - \$5 million/year, for an initial five-year project period. Forty-six EFRCs were initiated in 2009.
- Energy Innovation Hubs (Hubs) and Bioenergy Research Centers (BRCs) work at the frontier between basic and applied science. They bring together a large set of investigators spanning science, engineering, and policy disciplines focused on a single critical national need, and work to bridge the gap between basic scientific breakthroughs and industrial commercialization. Three BRCs were initiated in 2007 and renewed for a second five-year period in 2012. The first Hubs were established in 2010 and focused on: Computer Modeling and Simulation for the Development of Advanced Nuclear Reactors, Production of Fuels Directly from Sunlight, and Improving Energy-Efficient Building Systems Design. In 2012, two more were established focusing on Critical Materials and Batteries and Energy Storage. Typical awards are \$22 - \$25 million/year for up to five years.



- Advanced Research Projects Agency-Energy (ARPA-E) funds applied research and development of new technologies with emphasis on high risk, potentially transformational (rather than incremental) research. ARPA-E has made awards to about 285 projects totaling approximately \$770 million across the entire technology landscape.

The TF should serve as an independent group of experts to assist the DOE in its evaluation of the management and early progress of these new management and funding constructs that range from basic research – EFRCs – to integrated research centers combining basic and applied research with engineering – Hubs and BRCs – to high-risk technology development – ARPA-E.

The TF is asked to address the following questions:

- Are there gaps in the DOE approach to energy, science, technology innovation, and impact on industry development and deployment?
- Is the DOE effectively drawing on the resources of the labs, academia and industry, including entrepreneurial startups?
- Is this suite of new management and funding mechanisms proving effective? Are they complementary?

The TF should prepare a brief report that summarizes their findings on the effectiveness of these new constructs, identifies the challenges they are facing, and provides suggestions to the Department to enhance their success and possibly expand their use in the future.

Deputy Designated Federal Officer: Mackenzie Huffman

Schedule: The TF will prepare a brief written report of its activities and a presentation to the public at SEAB's March 2014, meeting.