ADVANCED ENERGY TECHNOLOGIES

Budget Trends and Challenges for DOE's Energy R&D Program

What GAO Found

Between fiscal years 1978 and 1998, DOE's budget authority for renewable, fossil, and nuclear energy R&D fell 92 percent when adjusted for inflation (from its $6 billion peak in fiscal year 1978 to $505 million in fiscal year 1998). It has since rebounded to $1.4 billion in fiscal year 2008 (see figure). Energy R&D funding in the late 1970s was robust in response to the 1973 energy crisis caused by constricted oil supplies. However, R&D funding plunged in the 1980s as oil prices returned to their historic levels. DOE's fiscal year 2009 budget, as compared with 2008, requests slightly less budget authority for renewable energy R&D, while seeking increases of 34 percent for fossil energy R&D and 44 percent for nuclear energy R&D. In addition, DOE is requesting $4.7 billion for basic research under its Office of Science.

The development and deployment of advanced energy technologies present key technical, cost, and environmental challenges. DOE's energy R&D program has focused on reducing high up-front capital costs; improving the operating efficiency of advanced energy technologies to enable them to better compete with conventional energy technologies; and reducing emissions of carbon dioxide, a greenhouse gas linked to global warming, and pollutants that adversely affect public health and the environment. However, while DOE has spent $57.5 billion over the past 30 years for R&D on these technologies, the nation's energy portfolio has not dramatically changed—fossil energy today provides 85 percent of the nation's energy compared to 93 percent in 1973. Because DOE's energy R&D funding alone will not be sufficient to deploy advanced energy technologies, coordinating energy R&D with other federal energy-related programs and policies will be important. In addition, other governments and the private sector will play a key role in developing and deploying advanced energy technologies that can change the nation's energy portfolio.

Budget Authority for Renewable, Fossil, and Nuclear Energy R&D, Fiscal Years 1978-2008

Note: Budget authority is in real terms, adjusted to fiscal year 2008 dollars to account for inflation.

To view the full product, including the scope and methodology, click on GAO-08-556T. For more information, contact Mark E. Gaffigan, at 202-512-3841 or gaffiganm@gao.gov.