

New Energy Frontier

FY 2014 President's Proposed Budget

Total request is \$48,178,000 (+\$17,216,000 above FY 2012 enacted level)

The USGS has long been recognized for its high-quality energy resource research and its assessments of geologically based energy sources, including coal, oil and gas, uranium, geothermal, and natural gas hydrates. As new technologies, such as hydraulic fracturing and directional drilling open up new frontiers for these resources, USGS' assessments keep pace delivering cutting-edge, robust, transparent, unbiased estimates of the Nation's changing energy resources.

The USGS also has a long history of biological research focused on understanding living organisms and ecosystem structure and function, including the effects of human activities. The USGS has been studying the impacts of alternative energy development on wildlife and also operational and development solutions for over a decade; most recent emphasis has been on the interaction of birds and bats with wind turbines and solar installations on desert species, offshore wind energy and seabirds, ecosystems services and biofuels.

In 2014, the USGS is receiving support to expand research to meet the President's emphasis on an "all-of-the-above" strategy for energy development in both the resources and ecosystems contexts. The proposed budget increase in 2014 will support priority research in three areas, which are (1) hydraulic fracturing research, (2) impacts to wildlife from alternative energy development, and (3) geothermal resource research.

The request includes a program increase of \$13.0 million to address priority science issues related to hydraulic fracturing. The 2014 budget also provides an increase of \$2.0 million for Energy Future and Wildlife Sustainability, which will be directed at a combination of basic biological research, development of tools and technology, improving modeling and predictions directly related to renewable energy decisions facing DOI and other land managers. In addition, the 2014 budget includes an increase of \$2.0 million to provide science to support agencies responsible for energy resource management on Federal lands. Funds will be used to characterize geothermal resources on Federal lands and study their potential for exploration and development as a potential energy source.

Hydraulic Fracturing

The 2014 budget supports a collaborative interagency research and development effort by the USGS, DOE, and EPA to conduct a national science, research, and development program aimed at understanding and reducing the potential environmental, health, and safety impacts of hydraulically fractured oil and gas reservoirs and to address the most urgent questions and decision-support needs surrounding hydraulic fracturing. The goal is to produce decision-ready information to ensure the prudent development of energy resources and the protection of human health and the environment. The USGS will focus on research that builds upon and enhances ongoing studies, as well as developing new and innovative investigations, assessments, techniques {development}, modeling, and monitoring to address urgent questions for the following subject areas: resource assessments and characterization; water quality; water availability; ecological impacts; effects on people and their communities; and induced seismicity.



Energy Future and Wildlife Sustainability

USGS ecosystems science is a key link between energy development and the sustainability of our natural environment, and is at the forefront of providing information for management decisions particularly for renewable energy. With the proposed budget increase, the USGS would undertake research and monitoring to better understand the ecology, behavior, and movements of birds, bats, reptiles, and other wildlife in relation to alternative energy development. The USGS would focus on strengthening and developing advanced technologies to mine bird and bat information from existing weather data, as well as allow observations of birds and bats at night when movement is often intense. The USGS would also build on pilot studies using remote data collection methods and multi-agency collaborations to solve unprecedented challenges in Arctic marine mammal research. Studies would include researching the potential impacts of seismic activities and ship traffic from Arctic oil and gas development on the Pacific walrus, which shares significant habitat with the areas of energy exploration.

Alternative Energy Permitting on Federal Lands

This proposed increase allows the USGS Energy Resources Program to provide science support to the agencies responsible for energy resource management on Federal Lands in several ways. There is substantial potential for unconventional geothermal resources on Federal lands, but these resources have not yet been thoroughly evaluated. Building on past geothermal research to evaluate the geology and subsurface characteristics, the USGS will identify areas of potential exploration and development of geothermal resources (particularly unconventional or enhanced geothermal systems) on Federal lands. The Bureau of Land Management and other agencies use this information for land use planning, lease sales, and potentially a targeted environmental impact statement for high potential areas. The increase would also allow for additional support for research on induced seismicity related to geothermal development on Federal lands, and help determine the risks and potential mitigation plans should development be proposed.



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