

PROGRAM facts

Strategic Center for
Natural Gas and Oil

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U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY



OIL EXPLORATION & PRODUCTION PROGRAM PRIME

Background

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Long-term research by America's oil companies has withered drastically. In a market where prices have become increasingly volatile, U.S. oil producers have increasingly narrowed their focus to projects that return a positive cash flow over a few months, rather than years. Industry-funded oil research laboratories have closed, and private-sector support for fundamental research and longer-range technology development has dwindled. And America's upstream oil sector increasingly is made up of smaller, independent companies without the wherewithal or institutional knowledge to conduct long-range R&D.

In its 2001 report assessing the value of DOE-funded research, the National Research Council (NRC) noted that the federal government has been the largest single source and stimulus of energy R&D funding for more than 20 years. NRC concluded that DOE's fossil energy R&D programs "have yielded significant benefits (economic, environmental, and national security-related); important technological options for potential application in a different (but possible) economic, political, and/or environmental setting; and important additions to the stock of engineering and scientific knowledge in a number of fields."

In the report, NRC said that DOE should continue to fund high-risk oil and gas R&D projects that individual oil companies cannot justify, noting specifically many projects in the area of drilling, completion, and stimulation.

Description

The Public Resources Invested in Management and Extraction (PRIME) program, which began in 2002, seeks to fill that growing void within the domestic oil industry.

PRIME looks well beyond industry's current focus. It differs from other DOE oil technology R&D programs in that it stresses high-risk research on concepts that may require 5-10 years to develop. Longer-term projects, such as those contained within PRIME, will provide the development needed to fuel revolutionary next steps in resource development advancement.

A major goal is to develop new approaches that can lead to enhanced production of oil resources found on public lands.

PRIME comprises three focus areas: new technologies for enhanced oil and gas recovery; innovative drilling, completion, and stimulation technologies, particularly new materials and downhole fluids for use while drilling; and revolutionary approaches in advanced diagnostics and imaging for finding and developing new oil and gas fields in the U.S. The PRIME projects are listed at the end of this fact sheet.



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On a broader scale, PRIME seeks to:

- Develop world-class technologies that enable U.S. industry to retain leadership in discovery and development of undiscovered or previously unattainable resources.
- Facilitate public-private partnerships that help America attain economic and energy security from increased domestic exploration and production and enhanced, effective stewardship of public lands.

Benefits

The technologies being developed from the PRIME program are designed to help reduce costs, risks, and environmental impacts associated with finding and producing U.S. petroleum resources.

Specifically, PRIME develops state-of-the-art oil and gas technologies for future applications in domestic areas including state and federal lands and waters. By trying to offset the loss of domestic industry laboratories and research, the program seeks to maintain U.S. world leadership in petroleum technology.

Under the National Energy Plan's goals to bolster domestic oil reserves and production to help meet America's growing oil needs, PRIME shares the risk of this promising long-term research through collaboration with academic, private research organizations, state and federal agencies, and industry.

PRIME Projects

DE-FC26-03NT15406	Rice University	Surfactant-Based Enhanced Recovery Processes and Foam Mobility Control
DE-FC26-03NT15405	Stanford University	Experimental Investigation and High Resolution Simulator of In-Situ Combustion Processes
DE-FC26-03NT15401	Terra Tek, Inc	Smaller Footprint Drilling System for Deep and Hard Rock Environment; Feasibility of Ultra-High-Speed Diamond Drilling
DE-FC26-03NT1539	Texas A&M	Interwell Connectivity and Diagnostic Using Correlation of Production and Injection Rate Data in Hydrocarbon Production
DE-FC26-03NT15395	University of Alabama	Basin Analysis and Petroleum System Characterization & Modeling, Interior Salt Basins, Central and Eastern Gulf of Mexico
DE-FC26-03NT15407	University of Southern Mississippi	Smart Multifunctional Polymers
DE-FC26-03NT15402	University of Texas at Austin	A Comprehensive, Statistically Based Method to Interpret Real-Time Flowing Well Measurements
DE-FC26-03NT15396	University of Texas at Austin	Elastic Wave Field Stratigraphy—A New Seismic Imaging Technology
DE-FC26-03NT15403	University of Tulsa	Development of Next-Generation Multiphase Pipe Flow Prediction Tools
DE-FC26-03NT15408	University of Wyoming	Fundamentals of Reservoir Surface Energy as Related to Surface Properties, Wettability, Capillary Action, and Oil Recovery from Fractured Reservoirs