



Fossil Energy

[Clean Coal & Natural Gas Power Systems](#)
[Carbon Sequestration](#)
[Hydrogen & Other Clean Fuels](#)
[Oil & Natural Gas Supply & Delivery](#)
[Natural Gas Regulation](#)
[U.S. Strategic Petroleum & Other Oil Reserves](#)

IN YOUR STATE

OFFICES & FACILITIES

EMAIL UPDATES

Register to receive Fossil Energy NEWSALERTS by e-mail.



QUICK REFERENCE

- [Fossil Energy Project Data](#)
- [International Activities](#)
- [R&D Commercial Successes](#)
- [Fossil Energy Site Map](#)

You are here: [Oil & Natural Gas Supply & Delivery](#) > [Marginal/Stripper Well R&D](#)

Marginal & Stripper Well Revitalization



Program Goal

Maximize the recovery of discovered oil and natural gas resources in the United States through efforts to curtail the premature abandonment of marginally economic oil and gas wells and fields.

One out of every six barrels of crude oil produced in the United States comes from a marginal well - a well whose production has slowed to 10 to 15 barrels a day or less. Over 78 percent of the total number of U.S. oil wells are now classified as marginal wells. There are over 400,000 of these wells in the United States, and together they produce nearly 900 thousand barrels of oil per day, 15 percent of U.S. production.

Many of these wells are marginally economic and at risk of being prematurely abandoned. When world oil prices were in the low teens in the late 1990s, the oil that flowed from marginal wells often cost more to produce than the price it brought on the market. From 1994 to 2003, approximately 142,000 marginal wells were plugged and abandoned, costing the U.S. more than \$3.0 billion in lost oil revenue at the EIA 2003 average world oil price.

When marginal wells are prematurely abandoned, significant quantities of oil remain behind. A common misperception is that oil left behind remains readily available for production when oil prices rise again. In most instances, this is not the case, leaving our nation more dependent on foreign oil imports, even though prices have now recovered and reached record highs in 2004.

When marginal fields are abandoned, the surface infrastructure - the pumps, piping, storage vessels, and other processing equipment - is removed and the lease forfeited. Since much of this equipment was probably installed over many years, replacing it over a short period should oil prices jump upward, is enormously expensive. Oil prices would have to rise several times higher than their historic highs - and most importantly, stay at elevated levels for many years - before there would be sufficient economic justification to bring many marginal fields back into production. As a result, once a marginal field abandoned, the oil that remains behind is often lost forever. The costs of re-drilling a plugged well may be as much as or more than drilling a new well. Estimates are that the marginal wells plugged and abandoned between 1994 and 2003 represented 110 million barrels of crude oil that was still in the ground.

RELATED NEWS

- > [DOE-backed Consortium Delivers Six New "Stripper Well" Technologies](#)
- > [More Related News](#)

PROJECT INFO

- > [Database of Natural Gas Production R&D Projects](#)
- > [Stripper Well Consortium Web Site](#)

QUICK FACTS/LINKS

- > [NETL Strategic Center for Natural Gas and Oil Web Site](#) [opens new window]
- > [Interstate Oil & Gas Compact Commission Web Site](#) [opens new window]

PROGRAM CONTACTS

- > [Elena Melchert Office of Fossil Energy](#)

in the ground.

Although the situation is less severe for natural gas, there is nonetheless a growing concern about the premature abandonment of gas stripper wells. Currently, there are more than 260,000 natural gas stripper wells in

the lower 48 states. Together they account for over 1.4 trillion cubic feet of natural gas, or about 7 percent of the natural gas produced in the lower 48 states. (A "stripper" gas well is defined by the Interstate Oil and Gas Compact Commission, which represents the governors of oil and natural gas producing states, as one that produces 60 thousand cubic feet or less of gas per day; the Internal Revenue Service, for tax purposes, uses a threshold of 75 thousand cubic feet per day.) Stripper wells are more common in older oil and gas producing regions, most notably in Appalachia, Texas and Oklahoma.

DOE strategies to curtail premature abandonment have focused on supporting an industry-driven Stripper Well Consortium (SWC). One consortium project by Vortex Flow LLC has developed downhole tools that reduce pressure drop thereby reducing the gas flow needed to lift liquids up the wellbore. This novel technology received the *Platts 2004 Newcomer of the Year Award*, one of the most prestigious award programs in the industry.

The Department of Energy helped organize the SWC in collaboration with Pennsylvania State University to assist small and independent operators who own the vast majority of the nation's stripper wells in the development, demonstration, and commercialization of technologies to improve production performance from stripper wells. The SWC coordinates research projects in three broad areas: reservoir remediation, wellbore clean-up, and surface system optimization.

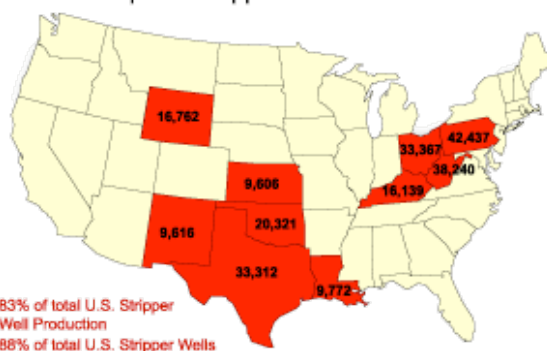
Specific research proposals are developed by SWC members, and there must be a minimum of 30 percent cost share from project participants. The SWC currently has about 100 members. The membership includes companies/organizations from 19 states, with operations in many other states. An Executive Council, appointed by the SWC's membership, selects proposed research projects that will lead to improving natural gas and petroleum production from stripper wells. The process of having industry develop, review, and select projects for funding will ensure that the SWC conducts research that is relevant and timely to the natural gas and petroleum industry. From 2001 through the end of 2004, the SWC committed \$4.48 million to co-fund 49 projects. In March 2005, the SWC committed \$1.58 million to co-fund 13 new projects. The DOE's Office of Fossil Energy, through the NETL Strategic Center for Natural Gas and Oil, and the New York State Energy Research and Development Authority provide base funding and guidance to the consortium. By pooling financial and human resources, the SWC membership can economically develop technologies that will extend the life and production of the nation's stripper wells.

MORE INFO

01.19.05
[Techline:
 Ultra-low Cost
 Well Monitoring
 Could Save
 Thousands of
 Marginal Oil](#)

Related DOE efforts entail supporting "reservoir life extension" technology development and technology transfer activities and providing sound science and analyses to support more informed regulatory and policy decisions. For example, a DOE-funded project in California has successfully

Top Ten Stripper Gas Well States



(FE-32)
 U.S. Department of
 Energy
 Washington, DC
 20585
 202-586-5095

> Lou Capitanio
 Office of Fossil
 Energy
 (FE-32)
 U.S. Department of
 Energy
 Washington, DC
 20585
 202-586-5098

> James Ammer
 National Energy
 Technology
 Laboratory
 P.O. Box 880
 U.S. Department of
 Energy
 Morgantown, WV
 26507
 304-285-4383

Wells tested a new, ultra-low cost method for monitoring marginal oil wells. The Marginal Expense Oilwell Wireless Surveillance (MEOWS) monitoring system allows daily remote monitoring of wells in real-time, providing information to the operator that helps improve efficiency of timer-controlled rod pumps. This novel, inexpensive monitoring system can help prevent the early abandonment of thousands of U.S. wells.

Page owner: Fossil Energy Office of Communications

Page updated on: October 31, 2005



U.S. Department of Energy | 1000 Independence Ave., SW | Washington, DC 20585
1-800-dial-DOE | f/202-586-4403 | e/General Contact

[Web Policies](#) | [No Fear Act](#) | [Site Map](#) | [Privacy](#) | [Phone Book](#) | [Employment](#)