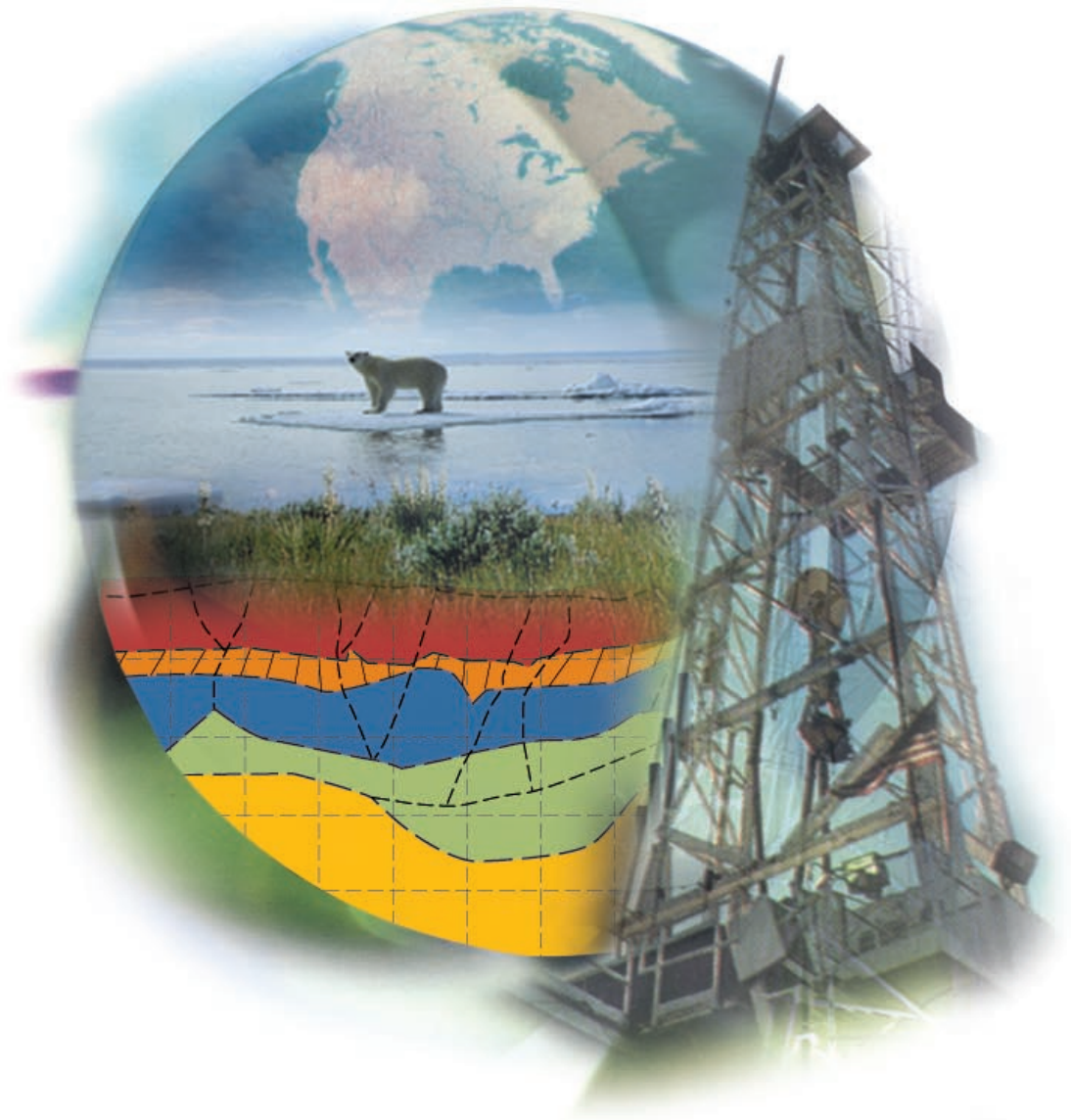




U.S. DEPARTMENT *of* ENERGY  
OFFICE *of* FOSSIL ENERGY



ENVIRONMENTAL BENEFITS  
*of* ADVANCED OIL *and* GAS EXPLORATION  
*and* PRODUCTION TECHNOLOGY

## INTRODUCTION

THROUGHOUT THE OIL AND GAS LIFE CYCLE, THE INDUSTRY HAS APPLIED AN ARRAY OF ADVANCED TECHNOLOGIES TO IMPROVE EFFICIENCY, PRODUCTIVITY, AND ENVIRONMENTAL PERFORMANCE. THIS REPORT FOCUSES SPECIFICALLY ON ADVANCES IN EXPLORATION AND PRODUCTION (E&P) OPERATIONS (SHOWN IN COLOR BELOW).

From fossil resources to products, the entire oil and gas life cycle typically spans 7 to 10 years. Development of more challenging resource areas, however, such as the Outer Continental Shelf, can take up to 20 years.

FOSSIL RESOURCES

EXPLORATION

DRILLING AND COMPLETION

PRODUCTION

OPERATIONS IN SENSITIVE ENVIRONMENTS

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Oil and gas resources are organic, formed by the effects of heat and pressure on sediments trapped beneath the earth's surface over millions of years. While ancient societies made some use of these resources, the modern petroleum age began less than a century and a half ago. Advances in technology have steadily improved our ability to find and extract oil and gas, and to convert them to efficient fuels and useful consumer products.

