

Joint Venture for Safe and Secure Offshore Petroleum R&D—an industry-government partnership to advance R&D and emergency response for offshore oil & gas exploration and production

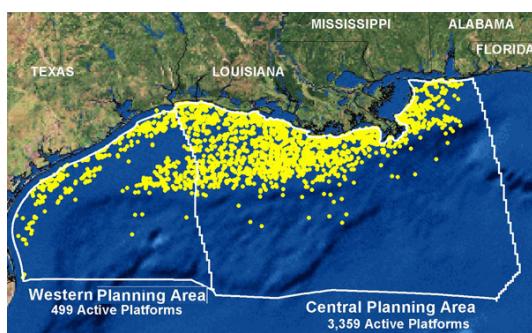
Petroleum is the source of 95% of the nation's transportation-sector fuels (the remaining is 2% natural gas and 3% renewables), and natural gas fuels more than 21% of the nation's electricity generating plants. Clearly, these commodities are

Platform P-51 off the Brazilian coast is a semisubmersible platform (photo courtesy of Agência Brasil).



essential to U.S. economic prosperity and national security. While much of the petroleum that we consume is imported, a significant fraction is withdrawn from domestic sites like the Gulf of Mexico, and the majority of the natural gas we consume is still produced domestically. In addition, much of the world's offshore drilling expertise is hosted in U.S. companies or companies that employ Americans. Developing technology that can help to ensure safe, secure, and reliable offshore drilling is in the interest of national security and the safety of our citizens.

The offshore oil & gas industry is faced with technical challenges that hamper its safety and reliability such as cost-effective



A NOAA map of the 3,858 active petroleum exploration and production sites in U.S. waters in the Gulf of Mexico.

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advances in technology that enhance safety, security, and reliability and an understanding of full-system risk and reliability for the offshore environment. In addition, the industry lacks the financial motivation to maintain an enduring R&D competency and an expertise base useful both for preventing and responding to accidents. Sandia and ECIS have capabilities in high-reliability system engineering, drilling, geosciences, material science, advanced simulation, probabilistic risk assessment, and dynamic simulation that we can leverage to assist the industry in surmounting these challenges. In addition, our 60 years of systems-engineering expertise can assist the industry establish emergency-response mechanisms including authorities, roles, and communication systems that will help restore/increase public confidence in the offshore petroleum enterprise.

Sandia can also partner with the Department of Energy and the Department of the Interior—using that same systems-engineering approach—to work with them to develop a predictable regulatory framework for enhanced safety, security, and reliability in the oil & gas industry and a standing response and recovery capability and framework for future incidents. Due the international scope of deep water oil & gas production, the developments of this joint venture could end up being adopted globally.



A remotely operated vehicle (ROV) performs oil-rig routine maintenance tasks at very deep depths.

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