

TESTIMONY
OF
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BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON ENERGY & MINERAL RESOURCES
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Chairman Lamborn, Ranking Member Holt, Members of the Committee: Good morning. I appreciate the opportunity to be here today to discuss the *Offshore Energy and Jobs Act* and the need for America to access offshore oil and gas resources.

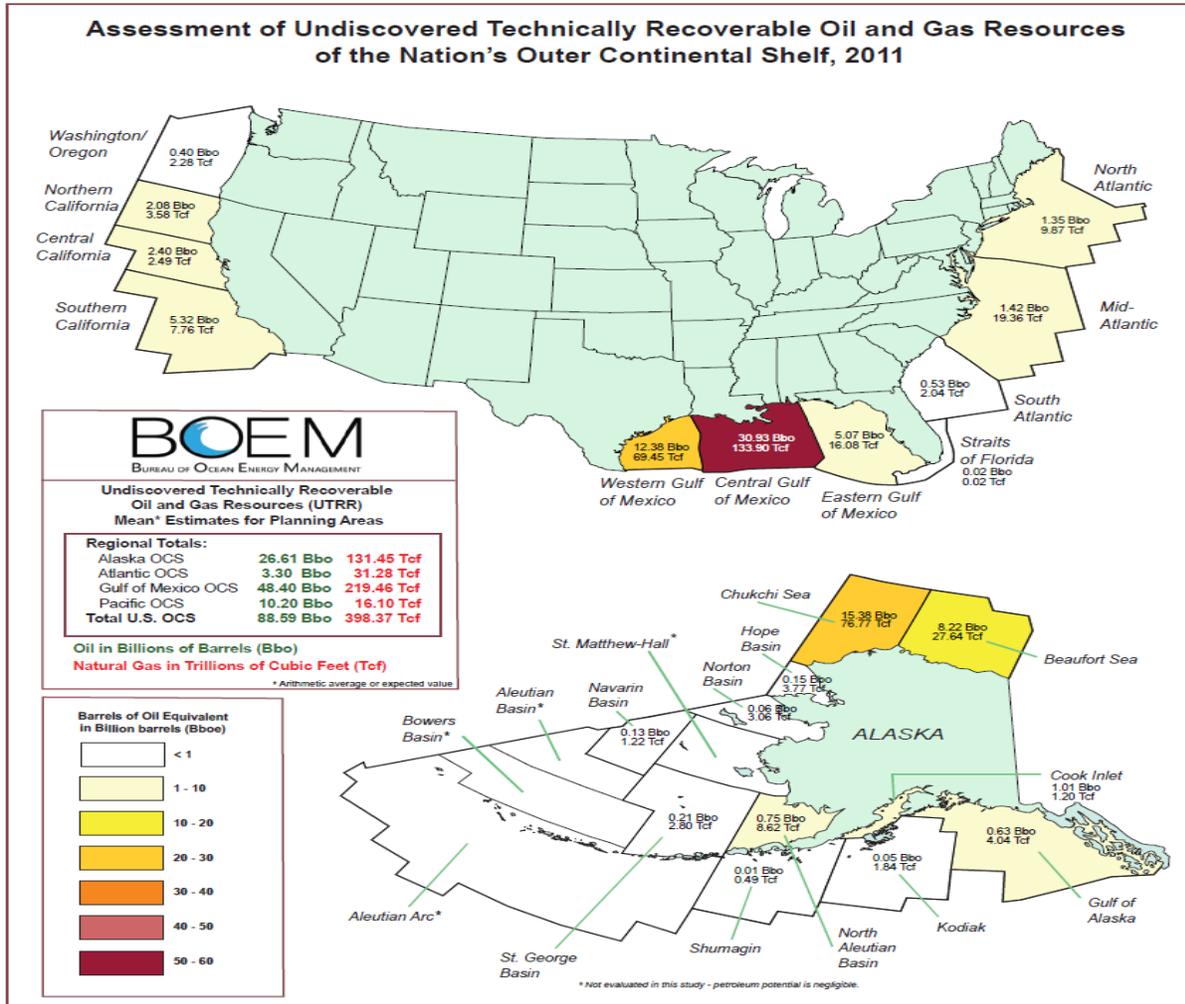
I am President of Spectrum Geo Inc., a company engaged in acquiring non-exclusive seismic data, processing it and licensing these products to oil and gas companies. The Spectrum Group is built on the company's reputation as a reliable seismic service provider and serves a global clientele. The Group provides innovative non-exclusive Services and high quality seismic imaging from regional offices in the US, the UK, Norway, Singapore and Australia. Spectrum is also a member of the International Association of Geophysical Contractors, a global trade association representing our industry.

We are pleased that Congress is considering legislation, like the Offshore Energy and Jobs Act, to make new areas of the federal OCS available for oil and gas exploration, and we encourage its passage. The US has remained successful in producing its oil and gas resources because we have historically been willing to explore in new areas. And the US has safely been exploring and developing its offshore oil and gas resources since 1947. For decades, the US Gulf of Mexico has provided significant oil and natural gas resources for American consumers, currently supplying approximately 27% of domestic oil production and 15% of domestic natural gas production. The Gulf of Mexico, one of the world's premier petroleum provinces, has proved to be resilient. Over the years producers have explored and produced at greater depths and in plays far below the ocean floor to find some of the world's most remote and abundant hydrocarbons.

While the deep water plays in the Western and Central Gulf of Mexico continue to be productive, the U.S. needs to begin exploring new areas in order to continue to fuel our vital economy and ensure we have energy security. In 2011, the U.S. Bureau of Ocean Energy Management (BOEM) estimated that the federal OCS is home to a mean of 88.6 billion barrels of undiscovered technically recoverable reserves (UTRR) of oil and 398.4 trillion cubic feet of UTRR of natural gas.¹ As the BOEM image below

¹ U.S. Department of the Interior, Bureau of Ocean Energy Management, "Resource Evaluation Program." <http://www.boem.gov/Oil-and-Gas-Energy-Program/Resource-Evaluation/Resource-Assessment/2011-RA-Assessments.aspx>.

demonstrates, significant reserves of oil and natural gas are believed to exist under areas outside the Western and Central Gulf of Mexico.



Source:

http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Resource_Evaluation/Resource_Assessment/2011_National_Assessment_Map.pdf

Even though nearly half of the estimated OCS resources exist outside the Western and Central Gulf of Mexico, abundant resources in the Atlantic, Pacific, Alaska, and Eastern Gulf of Mexico are not available for new leasing.

It takes years for oil and gas exploration to result in new production. Seismic data acquired today might result in actual energy to market in 10 to 20 years. This is due to the many steps that need to take place.

Modern seismic imaging provides the lens through which scientists can better understand what lies beneath the surface of the Earth. It is an amazingly useful scientific tool that allows us to accurately image the earth's crust down to depths in excess of 40,000 feet below the mud line (more than 8 miles down). Over the past few decades, advances in modern seismic imaging and interpretation have been tremendous. Today, seismic surveys that use modern data acquisition techniques and then process that data by applying the massive computing power that is now affordable are able to produce sub-surface images which are much clearer and more accurate than those from decades ago, or even 5 years ago. This ability serves many needs beyond oil and gas exploration. For the energy industry, modern seismic imaging reduces risk – both economic risk of exploration and production, but also the associated safety and environmental risks. It provides the early understanding of the geological structures that have the potential to produce oil and gas, where those hydrocarbons are trapped and how much likely exists. Modern seismic imaging provides greater certainty for explorers. It increases the likelihood that exploratory wells will successfully tap hydrocarbons and helps us avoid drilling for oil and gas in areas where we won't likely be successful. It also reduces the number of wells that need to be drilled in a given area, thus reducing the overall footprint for exploration.

As mentioned earlier, our company is engaged in acquiring non-exclusive seismic data, processing it and licensing these products to oil and gas companies. That means we do the work (and take the financial risks) needed to deliver oil and gas companies the ability to use modern seismic imaging to explore an area new to them (or new to the entire industry). They also use our products to develop reserves they discover in the process. We repeatedly license the seismic data to oil and gas companies for a fee, but retain the underlying ownership. By acquiring the data once and making it available to any oil and gas company, our industry avoids duplicating these surveys, and thus avoids unnecessary duplication of temporary disturbance caused by our surveys. We also provide the same products to BOEM for their use in evaluating the OCS resource base, in ensuring they receive fair market value when they lease OCS lands, and in making the many conservation decisions required of them as they administer their obligations under the OCS Lands Act.

Modern seismic imaging can dramatically improve our understanding of how much resources exist. Exploration and development activities generally lead to increased resource estimates. For example, in 1987 the Minerals Management Service estimated only 9.57 billion barrels of oil in the Gulf of Mexico. With more recent seismic data acquisition and additional exploratory drilling, that estimate rose in 2011 to 48.4 billion barrels of oil — a 500 percent increase!

To better understand how much resources exist in other areas like the Atlantic Outer Continental Shelf (OCS) we need to obtain modern seismic data. The last surveys of the Atlantic OCS were conducted 30 years ago. Due to technological advances, existing estimates of the available energy are out-of-date.

Existing resource estimates for the Atlantic OCS are 3.3 billion barrels of oil and 31.3 trillion cubic feet of natural gas. While these are impressive estimates, it is widely believed that modern seismic imaging using the latest technology will show much greater resources. It will also be able to pinpoint where the most abundant resources are likely located.

There are reasons why geologists and geophysicists believe that the Atlantic OCS could have much more abundant oil and gas resources than we previously believed. For one, the Atlantic Margin is proving to be quite productive in hydrocarbon production in areas like West Africa, Brazil and Nova Scotia.

Between 200 to 300 million years ago there was one supercontinent that we refer to as Pangea. It began to break apart 200 million years ago. At the time the US and Canadian East Coast, West Africa and Brazil were connected as a single land mass. The energy productive geologic structures in West Africa and Brazil have been correlated and determined to be the same age and structure with those that exist along the US East Coast. Further investigation will likely show that they are similar in their hydrocarbon-bearing geologic structures.

Pangea



Understanding the Atlantic Resource

The best decisions are generally made when we have the facts and the best data. This is true of our nation's oil and gas resources. It only makes sense for us to understand what the resource base and resource value is.

For the Atlantic OCS, we need to update our understanding of the resource, and modern seismic imaging is needed to make this evaluation. Older, low tech data that exists does not image medium to deep plays, and does not image the basin's architecture, which is imperative to understanding the Atlantic Margin play. We now have an array of new tools in the toolbox, reflection, gravity, magnetics, electromagnetic, which can better help us understand the potential resource. By utilizing these tools and by applying increasingly accurate and effective interpretation practices, we can be better locate and

dissect prospective areas, identify the types of plays we are locating, and help us evaluate the potential resource base. All of these factors demonstrate how modern seismic imaging creates a better understanding of what lies below the surface of the Earth before a single well is drilled. It is the least intrusive and most cost-effective way to understand where recoverable oil and gas resources likely exist in the southern- and mid-Atlantic.

Because acquiring and interpreting modern seismic data provides a greater understanding of where oil and gas reserves exist and how much are likely in place, having modern seismic data prior to a lease sale will allow industry to make more informed bids. This will likely result in more bids and higher bids since industry is reluctant to bid on blocks where there is little or no seismic data. Modern seismic imaging consistently brings more players to bid on offshore leases, creating more competition and driving the cost of leases higher. This is a phenomenon we are seeing globally as occurred recently in Uruguay with the government receiving \$1.2 billion lease bids and in Brazil where with \$2.0 billion in lease bids were received. Lebanon, Cyprus and Somalia are holding lease sales later this year that are expected to bring in significant revenues for the host countries. Oil and gas producers have the capital to explore frontier areas and are always looking for new opportunities.

As mentioned, having modern seismic data available also creates greater efficiency for the government as it allows the BOEM to better evaluate the blocks it is offering and the bids that it receives. With higher quality data about the resource, BOEM will have a great understanding of the resource value. This will ensure that the taxpayer get a greater return from federal OCS acreage.

Ongoing Programmatic Environmental Impact Statement

BOEM is in the process of producing a Programmatic Environmental Impact Statement (PEIS) to evaluate “potential significant environmental impacts of multiple geological and geophysical activities on the Atlantic Outer Continental Shelf”. A draft PEIS was published in the Federal Register on March 30, 2012 and underwent a 94-day comment period.

drilling and increases the likelihood that future drilling will be successful. As it stands today our understanding of this potential resource base depends on data that is thirty years old or older. Interpreting it is analogous to a blind person trying to judge a beauty contest. Americans deserve public policy decisions that are made based on the best information possible. Modern seismic surveys provide that information. Let's allow science to help us understand what resources we have. We owe it to ourselves.

Thank you for the opportunity to testify before the Subcommittee.