Testimony of

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On Behalf of the international Association of Geophysical Contractors
and the National Ocean Industries Association

Oversight Hearing on
"Examining the Future Impacts of President Obama's Offshore Energy Plan."

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Committee on Natural Resources
Subcommittee on Energy and Mineral Resources

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Chairman Lamborn, Ranking Member Lowenthal and Members of the Subcommittee:

Good morning and thank you for the opportunity to testify on the Administration's five-year plan. My name is Robert Hobbs and I am the Chief Executive Officer of TGS, a company that provides geoscientific data products and services to the oil and gas industry here in the United States and around the world. I am the immediate past Chairman of the International Association of Geophysical Contractors. IAGC's members provide geophysical services to the oil and natural gas industry. I also serve on the Board of Directors for the National Ocean Industries Association. NOIA is the only national trade association representing all segments of the offshore industry with an interest in the exploration and production of both traditional and renewable energy resources on the U.S. OCS.

The energy resources of the OCS are vitally important to America's energy, economic, and national security, and the purpose of the Five Year OCS Oil and Gas Leasing Program, or "Five Year Plan", is to provide a roadmap for the leasing of OCS areas. The Five Year Plan provides the public, government, and industry with a measure of reliability and predictability in the leasing of offshore oil and gas resources. While seismic and other geophysical surveys follow a separate permitting process, these surveys provide information that is critical to a successful Five Year Plan, improving the economics of oil and gas exploration and production and, importantly, lessening its environmental impact. Without accurate surveys of the geological formations in the lease areas, exploration is a guessing game, like finding a needle in ten thousand haystacks. Before I outline how the geophysical sector fits into the plan, let me spend a few moments explaining how we perform surveys, in this case seismic surveys.

Geophysical surveys are the only feasible technology available to accurately image the subsurface before a single well is drilled. The use of modern seismic technology is similar to ultrasound technology—a non-invasive mapping technique built upon the simple properties of sound waves. These surveys use acoustic sources to send sound energy deep into the earth's crust. As the sound waves return, we record them on hydrophones that may be towed up to seven miles behind the survey vessel. This process allows us to record data to depths of 40,000 feet—about 7.5 miles—below the earth's surface. *(Exhibit A)*

However, the data still needs to be processed before it can be interpreted and potential oil and gas reserves can be identified. IAGC's members and their clients use some of the most powerful computers in the world in order to perform that processing.

The acoustic source itself looks like this. *(Exhibit B)* It is a cylinder that is filled with air and which is then released under pressure, creating a seismic pulse. For the purposes of comparison, each cylinder releases an amount of air that you would find in a quart-sized soft drink bottle and it is released at 2,000 PSI, about the same pressure level that you would find in a home pressure washer. The sound itself lasts about a tenth of a second. Depending on the size of the survey, several of these cylinders will be used and released in a synchronized manner.

We take seriously our responsibility to conduct our work with minimal impact on the environment and to protect marine life. Industry supports implementation of mitigation measures that are commensurate to the potential risk and supported by the best available science, and its members comply with mitigation and monitoring measures required after BOEM and NMFS conduct site-

specific environmental assessments. The industry utilizes a number of measures to reduce or eliminate any risk to marine life. *(Exhibit C)* The potential impact of our operations on marine life is considered as a part of every permit to perform geophysical surveys. The Bureau of Ocean Energy Management reviews the daily reports of our activities offshore and has spent more than $50 million studying the impact of surveys on marine life, especially marine mammals. Our industry has participated in additional research costing several more millions of dollars. As a result of these measures and based on careful review of research, BOEM has stated that "To date, there has been no documented scientific evidence of noise from air guns used in geological and geophysical (G&G) seismic activities adversely affecting animal populations." " [1] The National Oceanic and Atmospheric Administration has also written within the last year that, "[T]here has been no specific documentation of temporary threshold shift (TTS) or permanent hearing damage, i.e., permanent threshold shift (PTS) in free-ranging marine mammals exposed to sequences of airgun pulses during realistic field conditions." [2]

The reason I have gone into this detail is to stress that each step of the process involves a high level of care, expense and, significantly, time. Each step - planning the survey, applying for the proper permits, performing the survey and then processing the data - may take months.

How does this all fit into the Five Year Plan? BOEM needs geophysical data to assess and confirm the hydrocarbon resource potential on the OCS and ensure the government is receiving market value on lease bids. Energy companies need the information to make informed decisions on what to lease and how to plan their drilling programs. Modern seismic imaging reduces risk by increasing the likelihood that exploratory wells will successfully tap hydrocarbons and decreasing the number of wells that need to be drilled in a given area, reducing the overall footprint for exploration. Ultimately it helps determine what areas are worth considering for exploration and what are not. In fact, surveys result in more areas being removed from consideration for drilling than actually being drilled—yet another way in which surveys are environmentally beneficial. Most importantly, geophysical data acquisition and interpretation should take place long before a lease sale can be held.

A hundred years ago, wildcatters studied the land below their feet and made their decisions about where to drill based on rudimentary knowledge of geology, personal experience and large amounts of guess work. That is why old pictures of drilling fields show dozens of drilling rigs scattered over the horizon. Today, using quality geophysical surveys, energy companies can drill with an ever increasing sense of confidence that they have a high probability of finding recoverable hydrocarbons. Without surveys, offshore exploration would ultimately prove impractical.

Interior Secretary Jewell has said the administration wants to build up its understanding of resource potential in the Atlantic. Our surveys will provide that understanding. The need is pronounced. According to Professor James Knapp, PhD, of the University of South Carolina, who testified before this subcommittee in January of 2014, more than 60 percent of the Atlantic area under consideration for leasing has <u>never</u> been surveyed. And the last survey of any of the potential lease areas took place in the 1970's and early 80's. Compared to the level of detail that we can produce today, those surveys can be described as primitive.

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[1] BOEM Science Notes, March 9, 2015

[2] Environmental Assessment of an Incidental Harassment Authorization incidental to a National Science Foundation marine geophysical survey in the Atlantic Ocean off North Carolina, at 31 (September 2014)

Here is one example. *(Exhibit D)* The image on the left was produced from that earlier survey. Yes, it contained valuable information, but compare it to the image on the right, in this case a modern 3-D survey. Technological advances and the enormous strides in computing power tell us so much more than we could have imagined when these areas were last surveyed more than 30 years ago. Very clearly, we need newer, better surveys to answer Secretary Jewell's call to build up our understanding.

Unfortunately, the administration's plans for an Atlantic lease sale have added a level of uncertainty to the process. Because the first sale is not planned until 2021 and only one sale is scheduled, BOEM has lost any flexibility if the sale is postponed for any reason. The long wait will not encourage more thorough surveys. It creates an unnecessary level of unpredictability and risk, and for this reason we have encouraged the Administration to schedule an Atlantic lease sale in 2019, providing ample time to collect and analyze the needed geophysical data. These concerns were outlined in joint trade association comments on the Draft Proposed Program.[3]

We also believe it is important that the agencies streamline the process of obtaining permits to perform geophysical surveys of the Mid- and South Atlantic OCS. The current process is estimated to take more than a year to accomplish. At least 10 applications for geophysical surveys in the Atlantic OCS have been pending since BOEM completed its programmatic environment review last July. We encourage the Administration to timely conduct the additional environmental reviews necessary to authorize these pending permit applications.

We should also stress that the information that surveys provide on the potential resources are important for the long-term development of the Southeast. Just as offshore exploration and production require long lead times, regional development also is a long-term commitment. Businesses look for factors like inexpensive sources of energy that they can rely on many years down the road. Our conversations with business groups in the southeastern states indicate very clearly that they are looking for the roadmap that the Five Year Plan process was intended to deliver.

We have similar concerns over the Administration's plans for leasing offshore Alaska. In March, the National Petroleum Council advised the Secretary of Energy that America needs to plan 30 years into the future in order to meet the country's long-term energy needs, especially given the extraordinary lead time needed to explore in Arctic waters. We agree. Exploration of the Arctic - safely, effectively and with an absolute commitment to environmental stewardship-- requires planning, preparation and extraordinary levels of investment. However, the government is sending mixed messages on how much of the arctic will be leased and whether lease sales will actually take place. As geophysical companies, we need some sense of certainty in order to survey the right areas within the right timeframe. More than that, the country needs to have a clear roadmap that industry can follow.

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[3] "The Associations feel that BOEM should reconsider its overly-conservative decisions regarding potential Atlantic leasing. Scheduling only one lease sale in the Atlantic OCS and having the sale near the end of the program (2021) does not provide BOEM the flexibility required should the need arise to postpone the sale. Scheduling the sale in 2019 would provide ample time to collect and analyze the needed geophysical data, set the appropriate sale area, and hold the lease sale, it and would provide extra time that would allow BOEM to postpone the sale should there be any administrative delays. The Associations request that BOEM consider adjusting the lease sale schedule to have the Atlantic sale earlier in the program. In addition, the Associations requests BOEM consider adding another Atlantic Regional Sale to the DPP. Our recommendation would be to have one Atlantic Sale in 2019 and another in 2021 or early 2022." March 30, 2015 letter to the docket signed by IAGC, NOIA, API, IPAA, US Oil & Gas Association, AXPC, PESA and AOGA.

Finally, the geophysical industry stands ready to provide government and industry with the information necessary to make rational decisions—both economically and environmentally—on energy policy. The geophysical industry uses cutting edge acoustic, geophysical and computer technology to allow us to peer back into history all the way to formation of our planet. In the process, we are able to look miles beneath the ocean floor to determine where valuable, recoverable energy resources lie and, importantly, where they do not. But we need a Five Year Plan that is predictable and reliable in order to address the long-term energy needs of our country.

Thank you and I will be happy to answer any questions.