

**THE BUREAU OF OCEAN ENERGY MANAGEMENT'S
2017-2022 OUTER CONTINENTAL SHELF OIL
AND GAS LEASING PROGRAM**

HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED FOURTEENTH CONGRESS
SECOND SESSION

MAY 19, 2016



Printed for the use of the
Committee on Energy and Natural Resources

Available via the World Wide Web: <http://fdsys.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

21-988

WASHINGTON : 2017

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
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THE BUREAU OF OCEAN ENERGY MANAGEMENT'S 2017-2022 OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

Thursday, May 19, 2016

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The Committee met, pursuant to notice, at 2:53 p.m. in Room SD-366, Dirksen Senate Office Building, Hon. Lisa Murkowski, Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM ALASKA

The CHAIRMAN. The Committee will come to order.

I apologize that we are starting a little bit late, but we had votes that we had to take care of and move forward on two Appropriations bills. Although that was good for the order, it does mean that we are starting just about a half hour late today, and it probably means that some of our colleagues who would otherwise have joined us here, we might not be seeing because of scheduling issues.

I appreciate the opportunity this afternoon to conduct oversight on the Outer Continental Shelf (OCS) oil and gas leasing program. More specifically, the five-year program for 2017 through 2022 that is being prepared by the Bureau of Ocean Energy Management.

We can start by recognizing that the natural endowment of the United States is virtually unrivaled. We have open spaces, wilderness, vast forests, national parks, productive seas and coastal regions. We have wild rivers, rivers that have been harnessed for our economy, soils that have ended famines and feed the world and mineral and energy deposits that underpin the international financial system and supply a global economic system.

Congress delegated the management and stewardship of one portion of that endowment, our nation's Outer Continental Shelf, to the Department of the Interior in the 1950's. Since then, it has become a valuable source of energy for our nation creating economic growth and providing security as it reduces our imports from other countries.

Over the past seven years, however, I have also watched the Department's slow but steady abrogation of duty to manage this endowment properly. It pains me to say this, but we now, effectively, have a Gulf of Mexico leasing program and the shadow of a program for three major planning areas in Alaska.

The Department has concluded after years of study that just 13 percent of our nation's OCS acreage should be available for leasing. It has canceled sales in Alaska where development has overwhelming support and has produced only a bare minimum plan for 2017 through 2022. I find that unacceptable.

The Energy Information Administration (EIA) tells us that OCS oil production will rise from 17 percent of the U.S. total this year to 21 percent in 2017. We could pat ourselves on the back about that, or we could recognize that it is the result of decisions made years ago, likely in 2007 or perhaps even earlier. That in turn should make us consider what kind of production the program before us today will yield for our nation in 2027 and beyond.

We are at a rare moment where we can plan ahead to meet our future needs without facing a supply or price-related emergency, yet we are not taking advantage of it. By choosing not to produce here, we are telling other countries, some of them rather nefarious, that we would rather buy from them. We are giving away the jobs, the revenues, the growth and the security that would all come with that energy development.

The Bureau of Ocean Energy Management (BOEM) removed the single Atlantic lease sale in its proposed program. A 2014 study estimated that a robust Atlantic leasing program could result in new oil production of 1.3 million barrels per day and 280,000 new jobs by 2035. Even if the Atlantic's resources are not that prolific, Interior's decision will still cost our country for years to come.

The Department's treatment of the Alaska OCS is also extremely frustrating. The proposed program includes just three sales with targeted acreage, not the area-wide sales that Alaskans have advocated for this past decade. Department leaders have implied there is waning interest in Alaska, but above all it is the chaotic Federal regulatory regime that is discouraging investment.

The economic activity that we are sending overseas due to lack of proper Alaska OCS management means Alaska Native communities that have survived for thousands of years in the harshest environment on Earth may have to choose between schools, health clinics or home heat. Just as our oil pipeline, our infrastructure of national significance and vital to the entire West Coast is at risk of becoming uneconomic and then by law, dismantled.

I am disappointed by the proposed five-year program for 2017 through 2022. Oil prices may be relatively low today but they will not stay that way, especially if we refuse to provide access to new supply. Instead we will find ourselves giving away the gains of recent years as our imports, once again, rise, our economy, once again, suffers and we, once again, find ourselves at the mercy of OPEC.

The Energy Security Leadership Council released a new report this morning, and I would urge members to read it carefully. Their Council, with CEOs, former military leaders and more, recommends reopening the five-year program for 2017 through 2022.

I had hoped that we would not reach that point, but we have and especially if the lease sales for Alaska are not maintained, we will do just that.

With that, I will now turn to Ranking Member Cantwell for your opening comments, and then we will go to our witnesses.

STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Senator CANTWELL. Thank you, Madam Chairman, for scheduling this hearing to examine the 2017–2022 Outer Continental Shelf oil and gas leasing program and I thank the witnesses for being here today.

Offshore oil and gas production is an important part of our domestic energy portfolio today, and I acknowledge its role in regional and local economies where production takes place.

As we have discussed today, we keep in mind that the potential for oil and gas resulting in these lease programs will not contribute to the energy markets in a meaningful way for a decade or more. But, during this time, we will see major changes in our energy landscape. So we need to plan leasing activities in the context of what those future economies will look like.

Last month was the sixth anniversary of the BP Deep Water Horizon explosion and oil spill, which was an epic human, economic and ecological disaster. Eleven members of the crew were killed in an explosion, and 17 others were injured. Oil spewed into the ocean for nearly three months, a mile below the surface, resulting in the largest offshore oil spill in the history of the United States. The 134,000,000 gallons of oil released is about 12 times more than the Exxon Valdez Spill. What we are learning about the damage from the final natural resource damage assessment released just this month is the following things:

First, the Deep Water Horizon spill caused the public to lose more than 16,000,000 user days of boating, fishing and beach-going experiences. Total recreational use damages due to oil spills were estimated at \$693.2 million.

Second, the deep water corals killed by this spill were hundreds of years old.

Third, in some of the species of dolphins, the oil spill caused 35 percent increase in death, a 46 percent increase in failed reproduction and a 37 percent increase in adverse health risk. Tens of thousands of sea turtles were killed by the spill, including three of the most critically endangered species of sea turtles in the Gulf.

There are many examples of response activities causing more damages than just the oil spill. We must incorporate new science about those damages into our decision-making for oil spill response and into decisions where we are going to allow oil and gas exploration and production.

It is clear that the Deep Water Horizon disaster could have been avoided. Multiple blue ribbon panels all concluded that immediate causes of the blowout preventers could be traced to a series of systematic failures in risk management and a broken safety culture.

The final version of offshore drilling safety regulations published last month addressed some of the primary causes of the disaster. It codifies the advances made by industry experts and regulators over the last five years. The Department of the Interior is continuing its work to finalize the Arctic drilling rule. But we cannot stop there.

Other recommendations by the Oil Spill Commission still need to be implemented by Congress and action taken. After all, the Coast Guard, NOAA and oil spill experts have testified time and time

again that the United States is not prepared to handle a large oil spill. And yet, our response plans and infrastructure have not been updated. Nevertheless, we are moving into deeper and deeper water and going after oil in increasingly challenging environments.

The Coast Guard has repeatedly stated that we do not have the ability to clean up oil in ice, and a spill in an ecologically-sensitive area can have dramatic consequences.

We also have not completed basic navigation charting nor do we have some of the forecasting capabilities, in the Arctic, despite unpredictable and severe weather conditions that contribute to the possibility of a spill.

All of this poses significant risk for exploration activities, which should be considered when making decisions about final leasing programs.

The question must be asked, can we afford the risk at this stage? We need to ensure that we can drill safely and respond to spills before exploration moves forward in ecologically sensitive areas. I urge the Interior to consider the greater risk posed while operating in a dynamic and challenging offshore environments.

Lastly, I believe the Atlantic region was rightfully removed from the program due to strong local opposition, conflicts with other ocean uses and market dynamics. The Department of the Interior recognized the potential for environmental and economic impacts in competing ocean uses. For example, the economic value of commercial fishing in the mid-Atlantic area was worth \$1.5 billion, and ocean-dependent tourism accounts for about \$10 billion of economic activity. For these reasons, it is not surprising there was significant opposition and that citizens and local officials responded in those communities.

Interior should also work to prevent harmful seismic air gun testing in areas which impact marine mammals, sea turtles, birds, and valuable fish species. With Atlantic drilling off the table, we should not subject marine mammals to negative impacts such as those that have occurred.

Once again, I thank the Chair for holding this hearing and I look forward to hearing the testimony of all the witnesses.

Thank you.

The CHAIRMAN. Thank you, Senator Cantwell.

We will now turn to our distinguished panel. Welcome to all of you.

We will be led off this afternoon by Abigail Ross Hopper, who is the Director of the Bureau of Ocean Energy Management (BOEM) at the Department of the Interior, welcome.

We are joined by Mayor John Hopson, who has come all the way from the city of Wainwright, Alaska at the top of the world, literally. It is a long journey, Mr. Hopson, and we appreciate you being here today.

He will be followed by Dr. Donald Boesch, who is a Professor of Marine Science and the President at the University of Maryland Center for Environmental Sciences.

James Knapp is also with us from the School of the Earth, Ocean and Environment at the University of Southern California, welcome to you.

Mr. Athan—

Mr. KNAPP. That would be South Carolina, Madam.

The CHAIRMAN. Oh, South Carolina. Okay. I put you on the wrong coast. I am sorry. Thank you for the correction. [Laughter.]

Mr. Athan Manuel is with the Committee this afternoon, who is the Director for Lands Protection Program with the Sierra Club, welcome to you.

The panel will be rounded out by Dr. Joseph Mason, Hermann Moyse, Jr./Louisiana Bankers Association Chair of Banking at the E. J. Ourso College of Business at Louisiana State University.

Thank you all for joining us this afternoon.

I would ask that you try to keep your comments limited to five minutes this afternoon. Your full statement will be incorporated as part of the record. We look forward to your statements today.

Ms. Hopper, if we can begin with you?

STATEMENT OF ABIGAIL ROSS HOPPER, DIRECTOR, BUREAU OF OCEAN MANAGEMENT, U.S. DEPARTMENT OF THE INTERIOR

Ms. HOPPER. Certainly, thank you. Good afternoon.

Chairman Murkowski, Ranking Member Cantwell and other members of the Committee, I'm pleased to appear before you today to discuss the Bureau of Ocean Energy Management's development of the 2017–2022 Outer Continental Shelf oil and gas leasing program. The Administration is committed to ensuring safe and responsible domestic oil and gas production as well as developing offshore renewable energy as part of a comprehensive energy strategy to grow America's energy economy and continue to reduce our dependence on foreign oil.

As you know the Outer Continental Shelf Lands Act, or OCSLA, requires BOEM to propose a schedule of leases every five years. This is referred to as the five-year program. We are currently in the process of developing that five-year program for 2017 to 2022.

In June 2014 we published a request for information and comments and received approximately 500,000 comments. On January 29th of 2015, the Department published the 2017–2022 draft proposed program (DPP) and simultaneously published a notice of intent to prepare a programmatic environmental impact statement (EIS). During the 60-day comment period following the DPP, BOEM received over one million comments and held 23 public meetings in communities across the nation.

The critical information received from the public was integrated into the scientific, environmental and social analysis that informs the Secretary's decision-making, and that decision-making process is defined by statute. As laid out in Section 18 of OCSLA, the Secretary of Interior must consider a number of factors and balance the potential for environmental damage, discovery of oil and gas and adverse impact on the coastal zone to determine the size, timing and location of lease sales.

After the Secretary weighed the required factors and conducted the appropriate analysis on March 15th of this year, BOEM announced the proposed program in the draft EIS. BOEM subsequently hosted 12 meetings in Alaska and the Gulf of Mexico region and one here in Washington.

Excuse me.

I personally had the privilege of attending five of those meetings on the North Slope of Alaska including one in Point Lay where I met many of the community leaders that are here today sitting behind us. I also participated in the public meetings as well as one on one meetings with community leaders in Kaktovik, Nuiqsut, Point Hope and Kotzebue.

Additionally, I have recently met with both Governor Walker and Lieutenant Governor Malloy—Mallott, excuse me, about the five-year program. And while I did not attend the Wainwright meeting, my colleagues did and therefore I did not meet Mayor Hopson and his community. I recently met with officials from the Laguna Corporation when they were here in Washington.

I've also attended the public meetings in New Orleans and Houston and DC. And since the release of the proposed program, I've met with representatives from the oil and gas industry, from the environmental community and other government officials. It is incredibly important to me, personally and to my Bureau, to hear from interested parties, community members and stakeholders across this country.

So the comment period for the draft EIS closed on May 2nd. We received about 75,000 comments, and the comment period for the proposed program remains open. It closes on June 16th.

After a review of those comments and conduct further analysis, we anticipate publishing the proposed final program and final environmental impact statement in late 2016.

So allow me to describe briefly the proposed program. As you know it's the second in a three proposal process. It includes 13 potential lease sales, ten sales in the Gulf of Mexico and three off-shore Alaska.

In Alaska, the proposed program continues to take a balanced approach to development utilizing the targeted leasing strategy set forth in the current program by identifying one potential sale each in the Beaufort, the Cook Inlet and the Chukchi Sea planning areas. And at a request by Governor Walker, we're considering moving the Beaufort Sea sale up to 2019.

The proposed sale also includes ten sales in the Gulf of Mexico, obviously one of the most highly productive basins in the world, where resource potential and industry interest are high and oil and gas infrastructure is well established.

The proposal includes a new approach to lease sales by proposing two annual sales that combine the western, central and eastern Gulf of Mexico, not subject to moratorium.

And then lastly, there are no sales scheduled for either the Pacific area or the Atlantic.

Madam Chairwoman, thank you for this opportunity to be here today to discuss our efforts to create an oil and gas leasing program, and I look forward to your questions.

[The prepared statement of Ms. Hopper follows:]

**STATEMENT OF
ABIGAIL ROSS HOPPER
DIRECTOR, BUREAU OF OCEAN ENERGY MANAGEMENT
UNITED STATES DEPARTMENT OF THE INTERIOR
BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE**

MAY 19, 2016

Chairman Murkowski, Ranking Member Cantwell, and Members of the Committee, I am pleased to appear before you today to discuss the Bureau of Ocean Energy Management's (BOEM) development of the 2017–2022 Outer Continental Shelf (OCS) Oil and Gas Leasing Program. The Administration is committed to ensuring safe and responsible domestic oil and gas production, as well as developing offshore renewable energy, as part of a comprehensive energy strategy to grow America's energy economy and continue to reduce our dependence on foreign oil. Ensuring safe and responsible development of the Nation's offshore oil and gas resources through leasing under the Five Year Program is an important part of that strategy.

The Outer Continental Shelf Lands Act (OCSLA) requires BOEM to propose a schedule of lease sales every five years. This is referred to as the "Five Year Program." As specified by Section 18 of the OCSLA, preparation and approval of an Oil and Gas Leasing Program is based on the Secretary of the Interior's consideration of a number of factors and the balancing of the potential for environmental damage, discovery of oil and gas, and adverse impact on the coastal zone, to determine the size, timing, and location of lease sales. The Five Year Program is designed to allow for diligent development of U.S. offshore oil and gas resources, which remains an important component of our domestic energy portfolio and contributes significantly to the Nation's economic output. The sales considered in the Proposed Program include sales in offshore areas where there is high industry interest, currently existing leases, and known or anticipated hydrocarbon potential.

Leasing Under the 2012-2017 OCS Oil and Gas Leasing Program

As BOEM prepares the Five Year Program for 2017-2022, it continues to implement the current Program for 2012-2017. Offshore leasing activity under the current Program reflects the Administration's overall approach to ensuring safe and environmentally responsible oil and gas resource development. This includes leasing in the Gulf of Mexico (GOM), where resources and industry interest are most extensive, and where mature infrastructure exists to support oil and gas activities. BOEM has held ten lease sales in the GOM under the current Program, generating a little over \$3 billion in bonus payments.

Three sales remain on the current Program lease sale schedule, with two sales in the GOM: Western GOM Sale 248 in 2016, and Central GOM Sale 247 in 2017; and one offshore Alaska: Cook Inlet Sale 244 in 2017.

The 2017–2022 OCS Oil and Gas Leasing Program

BOEM is in the process of developing the 2017–2022 OCS Oil and Gas Leasing Program. In June 2014, the Department published a Request for Information and Comments (RFI) and received approximately 500,000 comments. On January 29, 2015, the Department published the 2017–2022 OCS Oil and Gas Leasing Draft Proposed Program (DPP) and simultaneously published a Notice of Intent to Prepare a draft Programmatic Environmental Impact Statement (PEIS). During the 60-day comment period for the DPP, BOEM received over one million comments and held 23 public meetings in communities across the country. The critical information received from the public was integrated into the scientific, environmental and social analysis that informs the Secretary’s decision-making. On March 15, 2016, BOEM announced the Proposed Program and the Draft PEIS. BOEM subsequently hosted 12 meetings in Alaska and the Gulf of Mexico region, and one in Washington D.C. The comment period for the Draft PEIS closed on May 2, 2016, with over 300,000 comments received. The comment period for the Proposed Program closes on June 16, 2016. After reviewing the comments and conducting further analysis, BOEM anticipates releasing the Proposed Final Program and Final PEIS in late 2016.

Proposed Program

OCSLA prescribes the method by which the Department develops each Five Year Program. Publication of the 2017–2022 Proposed Program is the second proposal in a three-proposal process to develop the 2017–2022 Program. The 2017-2022 Proposed Program schedules 13 potential lease sales—10 sales in the GOM and three offshore Alaska.

As part of the Administration’s energy strategy, the Proposed Program continues the tailored leasing strategy set forth in the current 2012–2017 Program that takes into account regional differences in developing the proposed lease sale schedule. Section 18 of OCSLA requires that the Federal government take into consideration eight factors as the Five Year Program is developed. These considerations are: the geographical, geological, and ecological characteristics of the planning areas; finding a balance between the benefits of oil and gas development and environmental risks among regions; the location of areas considered for leasing with respect to regional and national energy markets and needs; the location of areas considered for leasing with respect to other uses of the sea and seabed; the interest expressed by potential oil and gas producers; the laws, goals, and policies of affected states; the environmental sensitivity and marine productivity of the areas; and environmental and predictive information. In order to develop a nationwide program, region-specific considerations were also taken into account, including information about resource potential; the status of resource development and infrastructure to support oil and gas activities and emergency response capabilities; recognition of regional interests and concerns; and the need to balance the development of offshore oil and gas resources with protection of the marine, coastal, and human environments. Further, for preparation of the Proposed Program, BOEM gave significant consideration to the substantial stakeholder engagement and public comments that stemmed from publication of the DPP.

Alaska

In Alaska, the 2017-2022 Proposed Program continues to take a balanced approach to development, utilizing the targeted leasing strategy set forth in the 2012–2017 Program by identifying one potential sale each in the Beaufort Sea (2020), Cook Inlet (2021), and Chukchi Sea (2022) Planning Areas. As a result of comments received on the DPP, including Governor Walker’s request for an earlier Beaufort Sale, BOEM is considering moving the Beaufort Sea sale to 2019.

Similar to the 2012–2017 Five Year Program, BOEM will continue to use a scientific approach to information and stakeholder feedback to proactively determine, in advance of any potential sale, which specific areas offer the greatest resource potential while minimizing potential conflicts with environmental, subsistence, and multiple use considerations. Sales will be tailored to offer areas that have significant resource potential, while appropriately weighing environmental protection, subsistence use needs, and other considerations.

Atlantic

After an extensive public input process, the sale that was proposed in the DPP in the Mid- and South Atlantic area has been removed from the program. Many factors were considered in the decision to remove this sale from the 2017-2022 Program including: significant potential conflicts with other ocean uses, such as the Department of Defense and commercial interests; current market dynamics; and opposition from many coastal communities.

Gulf of Mexico

The Proposed Program includes ten sales in the Gulf of Mexico - one of the most productive basins in the world - where resource potential and industry interest are high, and oil and gas infrastructure is well established. The proposal includes a new approach to lease sales by proposing two annual lease sales that include the combined Western, Central, and Eastern Gulf of Mexico not subject to moratoria. To provide greater flexibility for investment in the Gulf, this shifts from the traditional approach of one sale in the Western Gulf and a separate sale in the Central Gulf each year. BOEM will review comments received on this approach, and if the traditional approach is preferred, BOEM can revert back to the traditional separate planning area model for sales in the 2017-2022 Five Year Program.

Pacific

As in the DPP, no lease sales in the four planning areas off the Pacific coast were included in the Proposed Program for potential oil and natural gas leasing consideration. The exclusion of the Pacific Region is consistent with the long-standing interests of Pacific coast states and comments received on the RFI.

Conclusion

The Five Year Program is an important component of the Administration’s comprehensive energy strategy. The 2017-2022 Proposed Program has led to a significant outpouring of public interest from a wide array of stakeholders. BOEM takes this input very seriously, and we are

working hard to consider the feedback we receive, and to integrate comments into our Proposed Final Program and Final PEIS.

Madam Chairman, thank you again for the opportunity to be here today to discuss the Bureau's effort to create an oil and gas leasing program that will safely and responsibly reduce our dependence on foreign oil and create jobs through the development of these important energy resources. I am happy to answer any questions that you or members of the Committee may have.

The CHAIRMAN. Thank you, Director Hopper.
Mayor Hopson, welcome.

**STATEMENT OF HON. JOHN HOPSON, JR., MAYOR, CITY OF
WAINWRIGHT, ALASKA**

Mr. HOPSON. Chairman Murkowski, members of the Committee, my name is John Hopson, Jr. I'm the elected Mayor for the city of Wainwright and the North Slope Borough Assembly as well. I'm also a whaling captain and a Commissioner on Alaska's Eskimo Whaling Commission.

Wainwright is one of eight villages on the North Slope. We are located on the Chukchi Sea with a population of about 550 people. Ninety percent of our residents are Inupiat. The North Slope Borough is our local government encompassing 95,000 square miles across Northern Alaska. None of the Borough's eight communities are connected by road.

I'm a shareholder of the Native Corporation for Wainwright and also the Native Regional Corporation, ASRC. Like many of you here I share the heavy responsibility of providing for my family. I'm also responsible for outfitting my whaling crew.

As an elected official I have a responsibility to our residents who wish to protect their traditional way of life while also enjoying employment and modern public facilities and services.

As a Commissioner of AWC I work diligently to protect our bowhead whale harvest while ensuring the safety of our whalers.

I serve a community that faces a different reality than most Americans. We don't have Costcos or Ford dealerships. We are not connected to an electric grid or to the road system. Wainwright relies on a subsistence way of life. We hunt bowhead whales, caribou, walrus, and seals. It is a way of life we have fought hard to protect.

Our community is empowered by oil and gas development. We have proven the two can coexist. Though our communities are remote we invest in modern public services, water and sewer, health, education, police, fire. Our community depends on jobs to support our families.

As BOEM itself has indicated, the Arctic OCS has incredible resource potential. Continued exploration activities lead to continued investment and development that our communities are dependent on.

BOEM has expressed concern that Arctic oil and gas activities could impact small, isolated communities within our region. Wainwright is one of them. We urge BOEM to take seriously its responsibility to provide for development in a way that will support our communities.

I have six children that rely on subsistence food—80 percent of their diet is what we do. I also provide for elders and others who cannot hunt. Subsistence takes money. It costs money to buy gas, bullets. To put it simply, though we work hard to protect our subsistence way of life, we cannot hunt without jobs that provide an income. Many people would like to see us move toward alternative energy like wind, but wind won't power my boat.

BOEM has already invested heavily in recent years in research in the Arctic region and outreach to our communities. They also have worked hard to incorporate traditional knowledge into its

OCS management activities to better support the coexistence of Arctic ecosystems, subsistence and OCS oil and gas exploration. Why don't we let the program that has been developed work?

Our Native Corporations have created their own offshore development company, Arctic Inupiat Offshore. Where else in America does BOEM find indigenous people investing proactively in offshore? For BOEM to set aside vast areas of the Beaufort and Chukchi or give up completely on its Arctic OCS program would be to completely fail our communities.

Some environmental groups and some Members of Congress apparently are in love with their own version of the Arctic and are engaged in a national effort to stop Arctic oil and gas. Extreme environmental protections would mean the end of our Arctic communities. Where is the balance in that? Not with me and not with my community.

As an elected official for Wainwright and the North Slope I support retaining Arctic lease sales in the OCS in a way that protects our communities and the environment. My responsibility as an elected leader is to protect our subsistence way of life and to provide for financial stability in our region.

Thank you for the opportunity to provide comments today.

[The prepared statement of Mr. Hopson follows:]

**“The Bureau of Ocean Energy Management’s
2017-2022 OCS Oil and Gas Leasing Program”**

**Testimony
of
John Hopson, Jr.
Mayor
Wainwright, Alaska**

May 19, 2016

**Before the
Committee on Energy and Natural Resources
United States Senate**

Chairman Murkowski, Ranking Member Cantwell, and Members of the Committee:

Thank you for inviting me to testify before the Committee today. My name is John Hopson, Jr. I serve as the Mayor of Wainwright, Alaska. I am also a whaling captain. And I also serve as a member of the North Slope Borough Assembly.

Wainwright is one of eight villages in the North Slope Borough. We are located on the Chukchi Sea, with a population of approximately 550. Ninety percent of our residents are Iñupiat. The North Slope Borough is our county-level government, encompassing 95,000 square miles across northern Alaska. None of the Borough’s eight communities are connected by road.

I am a shareholder of Olgoonik Corporation, the Native village corporation for Wainwright. I am also a shareholder and an employee of Arctic Slope Regional Corporation (ASRC), the Native regional corporation for the North Slope region of Alaska.

Like many of you here, I share the heavy responsibility of providing for my family. I am also responsible for outfitting my whaling crew. And – as the Mayor of Wainwright and a member of the North Slope Borough Assembly – I have a responsibility to our residents, who wish to protect their traditional way of life while also enjoying the benefits of employment and modern public services.

As a mayor, an assembly member, a whaling captain, and a father, I serve a community that faces a different reality than most Americans. We don’t have Costcos or Safeways, or Ford dealerships. We are not connected to an electric grid or to a road system. And our heating fuel and gasoline costs upwards of \$5.50/gallon. Like many remote communities in Alaska, Wainwright relies on a

subsistence way of life. We hunt bowhead whales, caribou, polar bears, and seals. It is a way of life that we have fought hard to protect.

Though our communities are remote and our way of life is unique, neither our culture nor our communities are static. We invest in modern public services – water, sewer, health, and education – and, like any other community in America our community's health largely depends on the availability of well-paying jobs that support families. And yet, I think, many Americans would prefer that America's Arctic communities somehow reflect the image one might see in an oil painting of the 19th Century Arctic – an icy landscape dotted with undeveloped Inuit villages. That is neither realistic nor is it appropriate.

I appreciate the opportunity to be here today to talk about the future of my community in the context of the Bureau of Ocean Energy Management's ("BOEM") Proposed Outer Continental Shelf ("OCS") Oil and Gas Leasing Program for 2017-2022 ("Proposed Program"). In reviewing the Proposed Program, I am deeply concerned – and I speak for many many people in our communities – that BOEM appears to be wavering in its commitment to continuing Arctic OCS leasing and exploration.

Last October, BOEM cancelled Chukchi Sea Lease Sale 237 (scheduled for 2016) and Beaufort Sea Lease Sale 242 (scheduled for the first half of 2017)—both scheduled under the current Five Year Program—citing “current market conditions and low industry interest.” And today, only two Arctic lease sales are scheduled in the Proposed Program – one each in the Beaufort and Chukchi Seas – and some interests groups are pressuring BOEM to remove even those lease sales.

As BOEM itself has indicated, the Arctic OCS has incredible resource potential—greater than that of the Atlantic and second only to the Gulf of Mexico. BOEM's 2016 National Assessment estimates that the Alaska OCS contains more than a quarter of total OCS undiscovered technically recoverable oil (26.61 Bbbl) and more than a third of total OCS undiscovered technically recoverable gas (131.45 Tcfg). Oil and gas companies have long been interested in the potential of the region, with companies drilling 32 wells in Beaufort and Chukchi Seas in the 1980s and 1990s. Of course, the process of leasing and exploration is a self-winnowing process—companies will drill dry holes and move on to explore new areas. Continued exploration activities depend on new OCS lease sales. Companies will invest in Arctic OCS exploration if given the opportunity to do so.

BOEM has expressed concern that Arctic OCS oil and gas activities could impact “small isolated communities” within our region. Wainwright, which sits on the Chukchi Sea, may be the closest of those “isolated” communities to any future development in the Chukchi Sea. We appreciate BOEM's interest in protecting our communities, but we urge BOEM to take seriously its responsibility to provide for development in a way that will support our communities.

Today, taxes levied on onshore oil and gas infrastructure, including the Trans-Alaska Pipeline System (TAPS), support jobs in our region and allow our communities to have modern water and sewer, health, heating and housing infrastructure. The oil and gas industry is also the source of many jobs for the Native shareholders of our Alaska Native corporations, including oil field contracting, regulatory permitting, engineering, pipeline design and maintenance, property leasing, and spill prevention and response. We need those jobs to truly sustain our communities. To put it simply, though we work hard to protect our subsistence way of life, we cannot hunt without bullets and fuel, and we cannot buy bullets and fuel without jobs that provide income.

As BOEM is well aware, and recognizes in the Proposed Program, oil production from Alaska's Prudhoe Bay and Kuparuk fields is declining. With reduced onshore production, our local governments are finding it more difficult to build and repair critical infrastructure improvements and to build and maintain important social, health and educational programs that many Lower 48 communities take for granted. The reality is that the continued viability of TAPS is contingent upon further development of the Arctic OCS. Without measured, responsible development of Alaska's OCS resources, our communities face a grim economic future.

BOEM also has come a long way in the Arctic region since the *Deepwater Horizon* incident and the restructuring of the former Minerals Management Service (MMS). BOEM has invested heavily in recent years in research in the Arctic region and outreach to our communities. BOEM has developed region-specific regulations that it is working to finalize. BOEM also has worked hard to incorporate Traditional Knowledge into its OCS management activities to better support the co-existence of Arctic ecosystems, subsistence, and OCS oil and gas exploration. BOEM permits and other authorizations have required monitoring programs and prescribed mitigation measures, which include flexible, targeted time-area closures that constrain industry operations. Lease stipulations have included Conflict Avoidance Agreements, to assure that exploration, development, and production activities do not result in unreasonable conflicts with subsistence whaling and other subsistence harvests.

In the U.S. Arctic, the Iñupiat people have wrestled with the challenges of oil and gas development for a half century. The formation of the North Slope Borough in 1972 was largely driven by the interest of the Iñupiat community in protecting our traditional way of life and responding to the changes that oil and gas development would bring.

But our community also is empowered by oil and gas development. The North Slope Borough employs the largest number of people on the North Slope; maintains its own Department of Wildlife Management, which invests heavily in

protecting our subsistence resources; and maintains stringent permitting requirements for oil and gas companies that operate within our region.

Wainwright's Native village corporation, Olgoonik, has been involved in the preliminary stages of Arctic OCS development. Since 2007, Olgoonik has supported oil industry activities with marine mammal observers, communications coordination between the industry and subsistence hunters, and crew change and supply support services. Olgoonik also has managed marine science studies in the Chukchi and Beaufort Seas.

And our Native regional corporation, ASRC, along with six of our village corporations, has created its own offshore development company, Arctic Inupiat Offshore. Where else in America does BOEM find indigenous people investing proactively in offshore development so they may be positioned to assure that development benefits their communities while also protecting their way of life and culture? For BOEM to set aside vast areas of the Beaufort and Chukchi Seas, or to give up completely on its Arctic OCS program, would be to completely fail our communities.

Some environmental groups and some Members of Congress, apparently enamored of their own vision of the Arctic, are engaged in a national effort to stop Arctic oil and gas development. That effort imperils America's Arctic communities. Whom were these Members of Congress elected to represent? Not me and not my community. I can tell you where our elected leaders stand on the Arctic lease sales in the Proposed Program. As Wainwright's mayor, I support retaining the Arctic lease sales in the Proposed Program, and remain committed to working with BOEM to ensure that future leases are developed in a way that protects our communities and the environment.

In some parts of the world and some parts of America, indigenous people have been reduced to conservation refugees within their own homelands. My responsibility as an elected leader is to invest in responsible development in a manner that will support my community. I hope this Administration is committed to doing the same.

The CHAIRMAN. Thank you, Mayor, we appreciate it very much. Mr. Boesch, welcome.

STATEMENT OF DR. DONALD BOESCH, PRESIDENT, UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENT SCIENCES

Dr. HOPSON. Senator Murkowski and Senator Cassidy, my name is Donald Boesch, and I'm the President of the University of Maryland Center for Environmental Science. But I'm here today because I was one of the seven members of the National Commission on the BP Deep Water Horizon oil spill in offshore drilling, so my testimony includes perspectives on the Commission's recommendations implementing those recommendations.

I've also been involved as a witness in the trial of BP Clean Water Act violations as an advisor to government on aspects of the eventual settlement which was concluded just a month or so ago. The proposed OCS leasing program on which the hearing focuses should be evaluated in the context of steps taken by government and industry to reduce environmental and safety risk in response to the recommendations and not only our Commission but other investigative bodies. So let me briefly review those.

First, the Department of the Interior has taken a number of substantive executive actions in response to our recommendations and the other recommendations. The former Minerals Management Service was reorganized to separate the development, revenue and safety enforcement functions thus alleviating the inherent conflict of interest of those functions. So therefore, we now have the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement, BSEE.

The Department of the Interior also required that offshore operators demonstrate, for the first time, the ability to contain deep sea blowouts, if they occur. BSEE had more technically trained staff and compliance officers; however, it should be pointed out that a GAO report recently found that BSEE has made rather limited progress in enhancing its investigative capabilities, has restructured in a way that actually could weaken environmental compliance and has made limited progress in enhancing environmental enforcement.

BSEE required that the use of the Safety and Environmental Management System, SEMS II, backed by third party audits and these are moving forward. But these fall short of what the Commission recommended based on the experience in the North Sea, the safety case of the North Sea.

Investigations following our Commission reveal significant deficiencies in the design, maintenance and operation of the Deep Water Horizon blowout preventer. And just last month BSEE, six years after the blow out, BSEE issued the final well control rules for the design manufacture, repair and maintenance, BOPs, the blowout protectors. The American Petroleum Institute, however, has strenuously criticized the new rule as too costly and too prescriptive. Congress has taken some action in response to our recommendations.

On the positive side, it provided more resources for planning in BOEM as well as in better safety procedures in BSEE. It passed the RESTORE Act which provides 80 percent of the Clean Water

Act penalties for long-term environmental and economic restoration in the Gulf region; however, Congress has not passed legislation to codify this reorganization of the former MMS to create BOEM and BSEE.

Congress has also not raised the oil spill liability limits which was raised after the spill from \$75 million to \$134 million by BSEE. But that falls well short of the kinds of responsibility liabilities that could occur in a major spill, mindful of the fact that BP has expended over \$55 billion to deal with the consequences of the spill at this point.

Congress has also not enacted legislation that requires the industry to pay for support of the appropriate environmental science and regulatory review, including the comprehensive environmental program, environmental monitoring program, that was conceptualized when Congress passed OCSLA. And Congress has also not passed the legislation to provide whistleblower protection for the offshore oil and gas industry, workers in that industry.

Now having said that, Congress—the oil and gas industry has undertaken many steps to reduce the risk of offshore exploration and production. In general, most compliance companies, most companies, have approved their safety culture and procedures quite a bit. Notably in response to Department of the Interior's requirement for deep water containment, a consortia of companies have formed the Marine Well Containment Corporation and the Helix Well Containment Group.

So I see my time is running out, and you have my written testimony. I'm happy to cover in response to any of your questions, the other issues that I've raised in my review.

Thank you, Madam Chair.

[The prepared statement of Dr. Boesch follows:]



Written Testimony of Dr. Donald F. Boesch
President of the University of Maryland Center for Environmental Sciences
before the
U.S. Senate Committee on Energy and Natural Resources
Bureau of Ocean Energy Management's 2017-2022 OCS Oil and Gas Leasing Program
May 19, 2016

Chairwoman Murkowski, Ranking Member Cantwell and members of the Committee, my name is Donald Boesch and I am the President of the University of Maryland Center for Environmental Science. I have been involved in scientifically assessing the environmental impacts of offshore oil and gas development since 1985.¹

It was about six years ago to this day when I received a telephone call that led to my appointment as one of the seven members of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. The Commission submitted its report² on January 11, 2011, and my testimony today includes perspectives on implementing the Commission's recommendations.

Years later, I was a witness in the trial on the matter of Clean Water Act (CWA) violations by BP with regard to the seriousness of environmental harm. I was also a consultant to the Department of Justice and to the Federal Natural Resource Trustee agencies on issues related to legal settlement, damage assessment and restoration plans.³ Additionally, I serve on the Advisory Board of the National Academies' Gulf Research Program that is supporting research and development related to offshore oil system safety. I will offer additional perspectives based on these experiences.

In March 2016, Secretary Jewell announced the Proposed 2017-2022 Oil and Gas Leasing Program on which this hearing focuses. The program proposes 10 lease sales in the combined Gulf of Mexico Program Area, and one sale each in the Chukchi Sea, Beaufort Sea, and Cook Inlet Program Areas offshore Alaska. No lease sales are proposed for the Pacific or Atlantic OCS. The proposed program should be evaluated in the context of the 2010 Deepwater Horizon disaster and of the steps taken by the Department of the Interior and the industry to reduce environmental and human safety risks in response to recommendations by the Oil Spill Commission and other investigative bodies.

The Department of the Interior has taken a number of substantive executive actions in response to recommendations of the Commission and these other investigative bodies. These include:

¹ See: D.F. Boesch and N.N. Rabalais (eds.). 1987. *Long-Term Environmental Effects of Offshore Oil and Gas Development*. Elsevier Applied Science, London and New York.

² National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. 2011. *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*. U.S. Government Printing Office, Washington, DC.

³ Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Assessment. February 2016.

- The former Minerals Management Service was reorganized to separate the development, revenue, and safety and enforcement functions, thus reducing inherent conflicts of interest. The Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) were established.
- The Department of the Interior required that offshore operators demonstrate the ability to contain deepsea blowouts if they occur. Despite the fact that deepwater exploration and production had gone on in the Gulf of Mexico for over 20 years, no operator in the Gulf previously had this capability. The lack of containment capability is the principal reason the Deepwater Horizon blowout continued for 87 days.
- BSEE added more technically trained risk-compliance officers and inspectors, however the educational pipeline, competitive salaries, and working conditions continue to limit the bureau's technical capacity. However, earlier this year the Government Accountability Office (GAO) found that BSEE has made limited progress in enhancing the bureau's investigative capabilities, has restructured in a way that weakens environmental compliance oversight, and made limited progress in enhancing its enforcement capabilities.⁴
- In 2013 BSEE required the use of the Safety and Environmental Management Systems II (SEMS II) performance-focused tool for integrating and managing offshore operations. SEMS II third-party audits had to be in compliance by June 4, 2015. While this represents an improvement, it falls short of proactive, risk-based performance approach included in the "safety case" approach used in the North Sea.
- Although the Oil Spill Commission completed its report before the Deepwater Horizon's blowout preventer (BOP) could be forensically examined, subsequent investigations revealed significant deficiencies in its design, maintenance and operation. Just last month, six years after the Deepwater Horizon blowout, BSEE issued its final Well Control Rule⁵ for requirements for the design, manufacture, repair and maintenance of BOPs. The American Petroleum Institute has strenuously criticized the new rule as too costly and too prescriptive.
- BOEM raised the limit of liability for oil spills from offshore facilities from \$75 million to \$134 million, but this was only an adjustment for inflation over the 24 years from when the limit was originally set in the 1990 Oil Pollution Act.

The Congress, on the other hand, has taken only limited actions in response to the Oil Spill Commission recommendations, specifically:

- On the plus side, the Congress has appropriated additional funds to bolster the BOEM's environmental reviews and BSEE's regulation and inspection functions and passed the Resources and Ecosystems Sustainability, Touristic Opportunities and Revived Economies of the Gulf Coast States (RESORE) Act that dedicates 80 percent of the Clean Water Act penalties to long-term environmental and economic restoration of the Gulf of

⁴ General Accounting Office. 2016. *Oil and Gas Management: Interior's Bureau of Safety and Environmental Enforcement Restructuring Has Not Addressed Long-Standing Oversight Deficiencies*. GAO-16-245.

⁵ Bureau of Safety and Environmental Enforcement. 2016. *Oil and Gas and Sulfur Operations in the Outer Continental Shelf—Blowout Preventer Systems and Well Control*.

Mexico. However, the Congress has not passed legislation to codify the reorganization of MMS to create BOEM and BSEE.

- The Congress has not raised the oil spill liability limits to a more realistic level. The new limit of liability of \$134 million set by BOEM within its executive authority falls far short of the scale of responsibility for a major spill. BP expended over \$55 billion as a result of the Deepwater Horizon oil spill. Some other company with fewer resources and less responsible management could walk away and leave it to the government to control an oil spill.
- The Congress has not enacted legislation that requires the oil and gas industry to pay fees that support appropriate environmental science and regulatory review. At least in part due to the lack of funding, the BOEM has yet to implement a comprehensive environmental monitoring program in the Gulf of Mexico as envisioned by the Outer Continental Shelf Lands Act (OSCLA).
- The Congress has not passed legislation to provide whistleblower protections to workers regarding OCS oil and gas exploration, drilling, production or cleanup.

The oil and gas industry also has undertaken many steps to reduce the risks of offshore oil and gas exploration and production. The shutdown of deepwater operations in 2010 was a bitter lesson for many companies beyond BP and Anadarko. In general, most companies have since improved their safety culture and procedures. In response to the Department of the Interior requirement for deepwater well containment, companies worked together to form the Marine Well Containment Company and Helix Well Containment Group. These two rapid deepwater containment response systems are now deployed in the Gulf of Mexico, similar systems are now also deployed around the world wherever deepwater drilling occurs.

The oil and gas industry also established the Center for Offshore Safety that is playing a key role in setting third-party auditor qualifications and training requirements and SEMS certification. However, the Center for Offshore Safety falls short of the Commission's recommendation of an independent organization to develop, adopt, and enforce standards of excellence to ensure continuous improvement in safety and operational integrity offshore that was derived from the Commission's evaluation of safety accountability in the nuclear power industry. First, the Center's scope is much narrower than envisioned by the Commission. Second, the Center is an arm of the American Petroleum Institute, whereas the Commission recommended that it be a completely independent organization in order to avoid real or apparent conflicts of interest.

Is oil and gas drilling safer than it was in early 2010, prior to the Deepwater Horizon blowout? Yes, but I and my fellow Commissioners believe there is still significant room for improvement. There continue to be explosions, loss of well control events, and oil spills from offshore oil operations. Just last week, for instance, a Shell Oil Company production facility in 2,300 feet of water 90 miles south of Timbalier Island, discharged almost 90,000 gallons from a seabed flow line.⁶ Many of the new safety requirements are just now coming into force.

⁶ Ken Stickney. UPDATE: Shell oil spill recovery continues, *The Advertiser*, May 16, 2016.

Furthermore, I have concerns about how the fall in the price of oil has resulted in industry cutbacks in personnel and other expenditures. Offshore operations in the United Kingdom, for instance, have increasingly deferred the maintenance of critical safety equipment.⁷ The lower prices are particularly creating problems for the smaller companies that operate most of the wells on the Gulf continental shelf and many of those in deep water. Unlike the major companies familiar to most Americans, these smaller companies have generally less technical and financial capacity to deal with safety and oil spill response.

Through the National Science Foundation's Rapid Response Research, the BP-funded Gulf of Mexico Research Initiative, the Natural Resource Damage Assessment (NRDA) pursuant to the Oil Pollution Act, and other programs there has been an unprecedented level of research and assessment on the fate and effects of the Deepwater Horizon blowout. Extensive research results have been published and the recently completed Final Programmatic Damage Assessment provides a comprehensive assessment. However, these scientific results have yet to be synthesized from the perspective of drawing lessons that can be applied to leasing decisions, operational regulations, containment, and oil spill response. There is work yet to be done and the Congress should stand ready to act with appropriate legislation and appropriations.

As I mentioned earlier, the Oil Spill Commission recommended dedicating 80 percent of Clean Water Act fines for long-term environmental restoration. It also recommended a transparent and accountable process for natural resource damage assessment and restoration. Happily, with the Court's approval of the consent decree encompassing CWA penalties and NRDA payments, together with previous settlements and criminal plea agreements, there will be significant resources for environmental restoration in the Gulf from the National Fish and Wildlife Foundation's Gulf Environmental Benefit Fund, the RESTORE Act, and Natural Resources Trustee Council. It is important that these parallel programs be coordinated, scientifically directed and held accountable to achieve the maximum sustained restoration from long-term degradation, as well as the effects of the 2010 blowout. Again, I would urge the Congress to provide periodic oversight of these rare opportunities for environmental improvements.

The Oil Spill Commission's report only touched on leasing and development in frontier areas outside of the Gulf of Mexico. Mainly, we suggested that great caution be taken in the Alaskan Arctic, where the occurrence of sea ice and sensitive biological communities and the paucity of spill response capabilities greatly complicate the risks and responses to those challenges. Since that time, the Shell well drilled in the Chukchi Sea produced results that call into serious question oil resource estimates for the region and, just recently, Shell and other companies relinquished leases in the Beaufort and Chukchi seas. In addition, BOEM deferred any lease sales in the Atlantic OCS Region in its proposed five-year Program, citing growing opposition by coastal communities that are concerned about risks of Deepwater Horizon-like events to economies largely dependent on recreation and vacationing, as well as Department of Defense space use conflicts.

Another policy driver that will become ever more prominent is the national need to greatly reduce greenhouse gas emissions and, consequently, transition from our dependence on fossil

⁷ Mike Neill, The future of offshore risk management. *Offshore*, May 4, 2016.

fuels. Climate change is becoming ever more evident and science has now prescribed the lane-width on the pathways to limit global warming below 2° C. That is the basis for the Paris Agreement and the initial commitments of the United States and 176 other countries to reduce greenhouse gas emissions. Put simply, the United States will have to reduce its emissions by at least 80 percent over the next 30 to 40 years. If that is the case, then the question must be asked if we should seek to develop hydrocarbon resources in new, risky places when it will take 20 years or more to produce significant new resources from them.

Based on the immediate decisions by the Department of the Interior as well by the industry, it seems likely to me that the Gulf of Mexico will continue to produce virtually all of the nation's oil and gas resources. Ironically, the Gulf Coast is a region particularly susceptible to sea-level rise and more intense hurricanes. If we and the other nations in the world are able to achieve the dramatic reductions in greenhouse gas emissions needed to limit warming to 2° C, emerging science indicates that we can avoid a collapse of the West Antarctic ice shelves. This would avoid an additional three feet of sea level rise by the end of the century that would inundate the lower fourth of my native state of Louisiana, the very region that supports most of the nation's offshore oil and gas production. I urge Congress to provide some of the revenues produced from leasing and production in the region that shoulders this burden to assist the Gulf Coast in adapting to the changes that will confront it, both as result of climate and sea-level rise and the eventual phase-out of offshore oil and gas extraction industry.

The CHAIRMAN. Thank you, Dr. Boesch.
Mr. Knapp, welcome.

**STATEMENT OF DR. JAMES KNAPP, SCHOOL OF THE EARTH,
OCEAN, AND ENVIRONMENT, UNIVERSITY OF SOUTH CARO-
LINA**

Dr. KNAPP. Good afternoon, Madam Chair Murkowski and other honorable members of the Senate Committee on Energy and Natural Resources. It's my great pleasure and high honor to be here today, and I thank you both for holding this hearing and assembling, what I perceive to be, a very diverse group of voices and perspectives on the issue before us.

For the record, I am James H. Knapp, Professor in the School of the Earth, Ocean and Environment at the University of South Carolina. I currently serve as Past Chair of the Faculty Senate at the University of South Carolina, Columbia campus.

By way of background, I was born and raised in California, so I did grow up close to the University of Southern California, have lived in six and traveled to 49 states with the notable exception of the great State of Alaska. So I can't wait to be there. And through my profession as an Earth Scientist I've worked in and visited more than 40 countries. I hold a Bachelor of Science degree with distinction in Geological Sciences from Stanford University and a Ph.D. in Geology from the Massachusetts Institute of Technology. From 1988 to 1991 I worked with Shell Oil where I participated directly in oil and gas exploration in the Gulf of Mexico. For 25 years since then, my research team and I have carried out both fundamental and applied research in the Earth Sciences including the design, acquisition, processing and interpretation of seismic surveys both onshore and offshore. Many of my former students remain gainfully employed in the energy sector despite the significant downturn the industry over the last two years.

For the past eight years I have been a vocal advocate for the acquisition of new seismic data on the Atlantic OCS both such that the Bureau of Ocean Energy Management might fairly execute its statutory obligation to adequately evaluate the resource potential of this essentially frontier petroleum province and so that those of us in the scientific community might perpetuate the fundamental and historic legacy of this continental margin.

One hundred years ago our knowledge of the geology beyond the shoreline, not only here in the United States but worldwide, was a gross state of ignorance. Beyond simplistic soundings of water depth in near shore areas or primitive measurements of ocean currents, the nature of ocean basins and the submerged portions of continents or continental shelves, was largely unknown.

Beginning in the late 1920's pioneering scientists here in the United States first developed a theoretical basis for and subsequently the practical application of marine seismic surveys, ironically, right here on the Atlantic Coast at the mouth of the Chesapeake Bay no less than 150 miles from where we currently sit. This marine seismic work which evolved over the ensuing decades here on the Atlantic margin of North America was literally the stuff of legends involving dedicated teams of scientists operating heavy

equipment at risk of life and limb in the challenging marine environment, all in the name of the public interest.

These seminal studies ultimately led to the recognition that the continents are composed of fundamentally different rocks than those underlying the ocean basins, discoveries that laid the ground work for the eventual scientific revolution of plate tectonics in the 1960s. Given the long standing significance of these marine seismic surveys we still routinely recount this history in our introductory textbooks and courses in geology for thousands of college students.

Obviously neither seismic surveying or offshore exploration are new to the Atlantic OCS. More than 240,000 line miles of 2D seismic reflection data were acquired off the shores of the U.S. Atlantic between the late 1960s and the late 1980s in support of an earlier phase of petroleum exploration during which 51 offshore wells were drilled. In preparation for these activities extensive environmental impact studies were carried out by Federal agencies, much as they are today, evaluating the potential impacts of seismic surveying and offshore drilling on tourism, commercial and recreational fishing and marine shipping and commerce.

These other uses of the marine and near shore environment have continued to pace over the last 50 years despite the previous efforts for offshore energy development belying the claim that such activities are mutually exclusive.

These legacy seismic data released by the Federal Government following a 24-year moratorium or 25-year moratorium are providing fundamental new insights on the geologic evolution of eastern margin North America.

Not only does it appear that a significantly larger portion of the Southeastern U.S. was once a part of the African South American continent than previously thought, but these data are helping to identify previously unrecognized faults on the continental margin which may pose a significant earthquake and tsunami risk to coastal communities along the eastern seaboard.

We are also analyzing these same data through federally-funded research projects to evaluate the potential for wind energy development and geologic storage of CO₂ in the offshore.

Despite the enormous scientific value of these legacy seismic data, fully 80 percent of the territory that was included in the draft five-year plan has never been evaluated with commercial seismic surveys. Furthermore, modern seismic surveys driven globally by exploration activities over the last two decades have ushered in fundamentally new models for how continents break and what continental margins evolve.

I see I have exceeded my time so if I need to stop I will.

[The prepared statement of Dr. Knapp follows:]

Testimony of

James H. Knapp, Ph.D.

Professor in the
SCHOOL OF THE EARTH, OCEAN, AND ENVIRONMENT
at the
UNIVERSITY OF SOUTH CAROLINA

before the
SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

on
“HEARING TO EXAMINE THE BUREAU OF OCEAN ENERGY MANAGEMENT’S
2017-2022 OCS OIL AND GAS LEASING PROGRAM”

19 MAY 2016

Introduction

Good afternoon, Madam Chair Murkowski, Ranking Member Cantwell, and honorable members of the Senate Committee on Energy and Natural Resources. It is my great pleasure and high honor to be here today, and I thank you both for holding this hearing and for the opportunity to appear here before you. For the record, I am James H. Knapp, Professor in the School of the Earth, Ocean, and Environment at the University of South Carolina, and I currently serve as Past Chair of the Faculty Senate at the University of South Carolina Columbia campus. I will be summarizing my written testimony in these opening comments, which I submit for the record.

Educational and Professional Background

By way of background, I was born and raised in California, have lived in six and traveled to 49 states (with the notable exception of the great state of Alaska), and through my profession as an Earth scientist, have worked in or visited more than 40 countries. I hold a Bachelor of Science degree with distinction in geological sciences from Stanford University, and a Ph.D. in geology from the Massachusetts Institute of Technology. From 1988 to 1991 I worked with Shell Oil, where I participated directly in oil and gas exploration in the Gulf of Mexico. For 25 years since then, my research team and I have carried out both fundamental and applied research in the Earth sciences, including the design, acquisition, processing, and interpretation of seismic surveys, both onshore and offshore. Many of my former students remain gainfully employed in the energy sector, despite the significant downturn in the industry over the last two years. For the past eight years, I have been a vocal advocate for the acquisition of new seismic data on the Atlantic OCS, both such that the Bureau of Ocean Energy Management might fairly execute its statutory obligation to adequately evaluate the resource potential of this essentially frontier petroleum province, and so that those of us in the scientific community might perpetuate the fundamental and historic legacy of this continental margin.

History of Marine Seismic Surveying

A hundred years ago, our knowledge of the geology beyond the shoreline, not only here in the United States but worldwide, was largely in a state of ignorance. Beyond simplistic soundings of water depth in near-shore areas, or primitive measurements of ocean currents, the nature of ocean basins and the submerged portions of continents, or continental shelves, was largely unknown. Beginning in the late 1920's, pioneering scientists here in the United States first developed the theoretical basis for and subsequently the practical application of marine seismic surveys, ironically right here on the Atlantic Coast at the mouth of Chesapeake Bay (Figure 1; Ewing et al, 1937), no less than 150 miles from where we currently sit.

This marine seismic work, which evolved over the ensuing decades here on the Atlantic margin of North America, was literally the stuff of legends, involving dedicated teams of scientists, operating heavy equipment at risk of life and limb in the challenging marine environment, all in the name of the public interest. These seminal studies

ultimately led to the recognition that the continents are composed of fundamentally different rocks than those underlying the ocean basins, discoveries that laid the groundwork for the eventual scientific revolution of plate tectonics in the 1960's. Given the long-standing significance of these marine seismic surveys, we still routinely recount this history in our introductory textbooks and courses in geology for thousands of college students.

Modern Seismic Surveying

Obviously, neither seismic surveying nor offshore exploration are new to the Atlantic OCS. More than 240,000 line miles (385,000 line km) of 2-D seismic reflection data were acquired off the shores of the U.S. Atlantic between the late 1960s and late 1980s (Figure 2), in support of an earlier phase of petroleum exploration during which 51 offshore wells were drilled. In preparation for these activities, extensive environmental impact studies were carried out by federal agencies, much as they are today, evaluating the potential impacts of seismic surveying and offshore drilling on tourism, commercial and recreational fishing, and marine shipping and commerce. These other uses of the marine and near-shore environment have continued apace over the last 50 years, despite the previous efforts for offshore energy development, belying the claim that such activities are mutually exclusive.

These legacy seismic data, released by the federal government following a 25-year moratorium, are providing fundamental new insights on the geologic evolution of the eastern margin of North America. Not only does it appear that a significantly larger portion of the southeastern U.S. was once a part of the African-South American continent (Gondwana) than previously thought, but these data are helping to identify previously unrecognized faults on the continental margin which may pose a significant earthquake and tsunami risk to coastal communities along the Eastern seaboard. We are also analyzing these same data through federally-funded research projects to evaluate the potential for wind energy development and geologic storage of CO₂ in the offshore.

Despite the enormous scientific value of these legacy seismic data, fully 80% of the territory that was included in the draft 5-year plan has never been evaluated with commercial seismic surveys (Figure 3). Furthermore, modern seismic surveys, driven globally by exploration activities over the last two decades (Figure 4), have ushered in fundamentally new models for how continents break and continental margins evolve.

Conclusion

In conclusion, I remain hopeful that either Congress or a new administration may yet reinstate an opportunity for market forces to determine whether offshore oil and gas development is warranted on the Atlantic OCS. Those decisions can only be made in an informed way on the basis of new, state-of-the-art seismic surveys, and unless Congress is willing to appropriate the hundreds of millions of dollars for these surveys, they will likely only take place if there is at least a prospect that seismic contractors might recover a return on their investment based on a future lease sale.

Figures

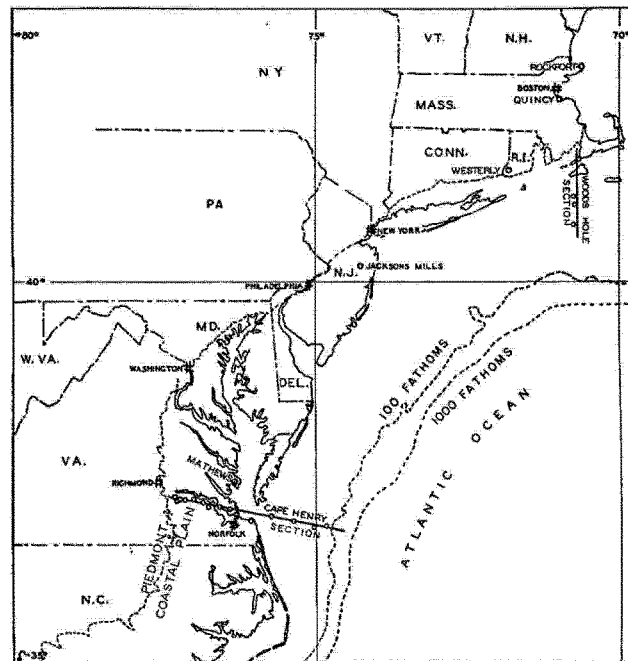


FIGURE 1.—Key map of regions studied

Figure 1. Location map of first marine seismic survey, conducted at the mouth of Chesapeake Bay near Cape Henry (from Ewing et al, 1937; "Hence, it seems reasonable...to consider the present work the initial application of seismic measurements to submarine geological problems.")

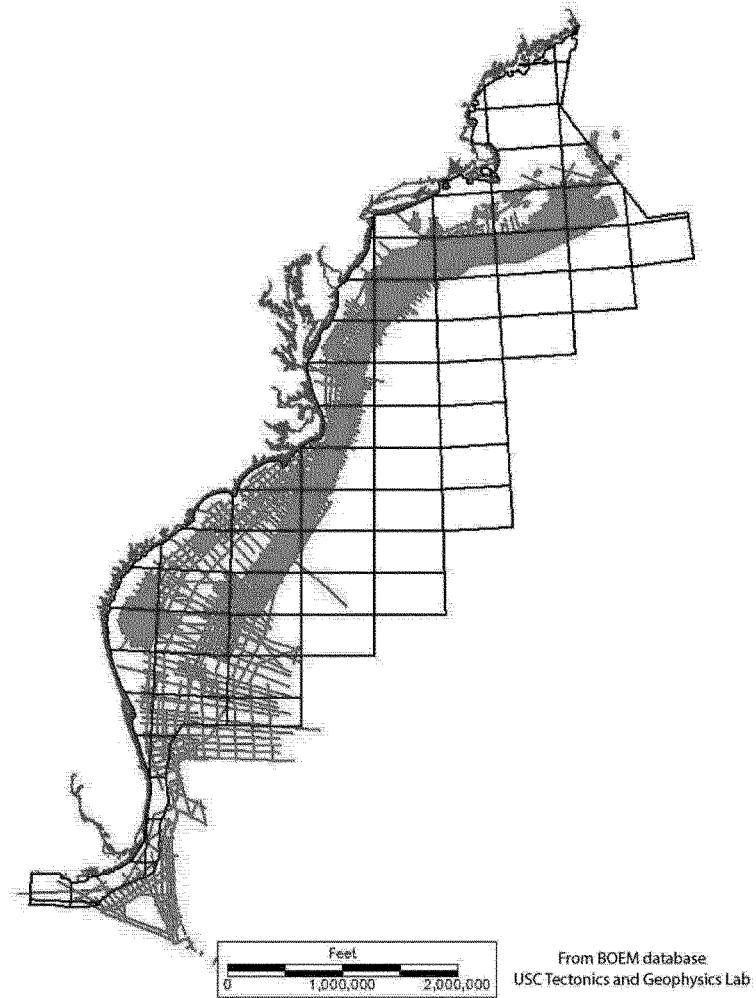


Figure 2. Map of legacy 2-D seismic data on the Atlantic OCS (courtesy of BOEM.) Approximately 380,000 line km (240,000 line miles) of 2-D seismic data were collected in the Atlantic OCS between 1966 and 1988.

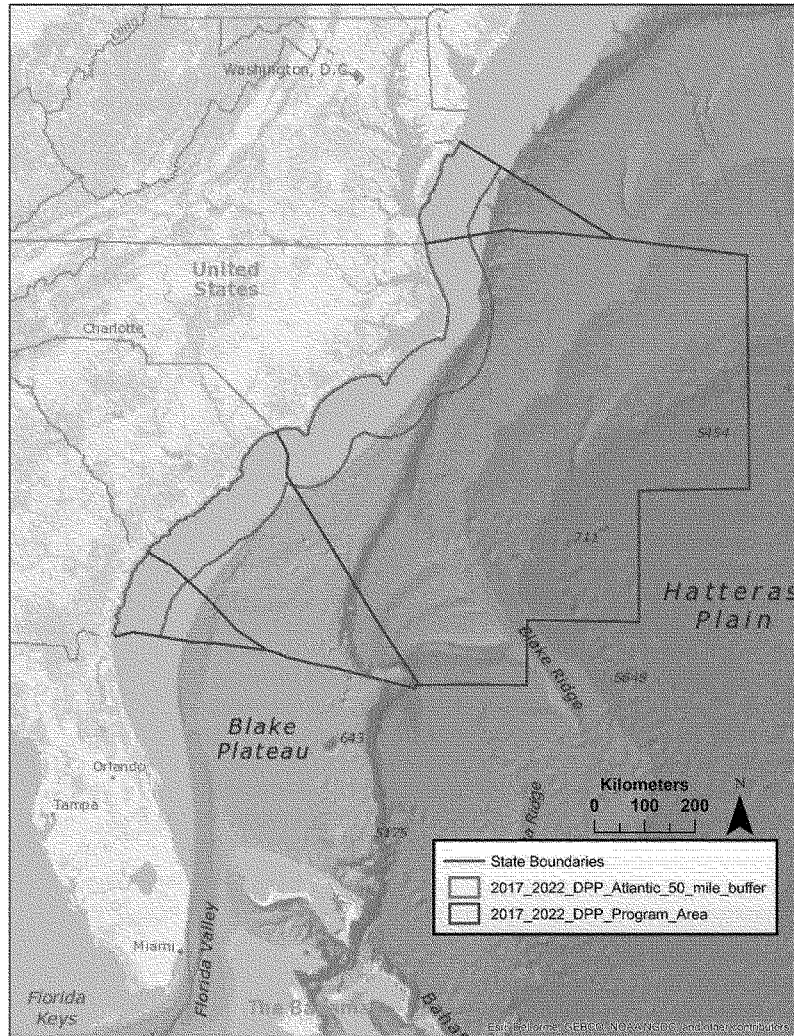


Figure 3. Area within Mid- and South Atlantic OCS Planning Areas originally included in the BOEM Draft Proposed Plan for 2017-2022. Red boundary represents 50 mile buffer zone from state waters. Fully 80% of area which was under consideration for exploration leases has never been the subject of commercial seismic surveys. (Produced at the Tectonics and Geophysics Lab at USC with information from BOEM.)

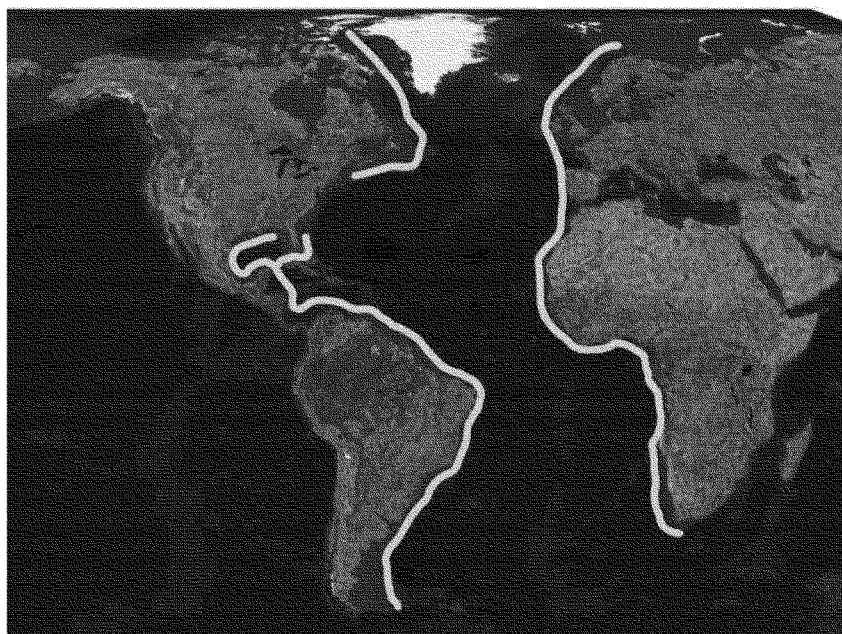


Figure 4. Map showing current offshore exploration efforts in the Atlantic Basin. Conspicuously absent are the Atlantic continental margin and Eastern Gulf of Mexico of the United States. (Courtesy of G. Steffens, Shell Oil Co.)

The CHAIRMAN. Thank you, Mr. Knapp. We will be sure to ask some questions about where we are with the seismic. I appreciate it.

Mr. Manuel, welcome.

**STATEMENT OF ATHAN MANUEL, DIRECTOR, LANDS
PROTECTION PROGRAM, SIERRA CLUB**

Mr. MANUEL. Thank you, Chairman. Thank you for that welcome and thank you to Ranking Member Cantwell, Senators Cassidy and Heinrich. My name is Athan Manuel, and I direct the Sierra Club's Lands Protection Program.

Sierra Club, as you probably know, is the largest grassroots environmental group in the United States. And we have 2.4 million members and supporters spread out over 65 chapters and 450 groups nationwide, and we have active members in every state in the country. It's my pleasure to comment today on BOEM's five-year plan for the 2017–2022 OCS oil and gas leasing program.

We see this five-year plan not just about drilling but as an opportunity to really talk about climate and energy policy, and we feel like climate change is one of the most pressing global challenges our nation faces. And we think that new offshore oil and drilling or offshore oil and gas drilling would keep the U.S. dependent on fossil fuels and harm our fight against climate change.

The U.S. under the Obama Administration is leading the world, we think, in the fight against climate disruption and new offshore drilling and leasing would undercut that leadership.

So far we've been pleased with the trajectory of the five-year plan. We're very happy that in March the Obama Administration and Secretary Jewell announced that the Atlantic was coming out of the five-year plan. We were also happy, we were happy that it came out but also very happy that BOEM cited the overwhelming grassroots opposition from coastal communities, coastal businesses to having the Atlantic included in that five-year plan.

That said, we do encourage BOEM to deny the permits for seismic testing. Since drilling is not going to happen there, we don't see the need for further seismic testing in that region, testing that could harm marine mammals and other marine values there off of our coast.

We're not happy though, unfortunately, that there are still 13 lease sales in the draft plan, that we see 10 lease sales happening in the Central and Western Gulf of Mexico and then three off in Alaska, two in the Arctic Ocean. We obviously oppose any new drilling in the Outer Continental Shelf. We think it's incompatible with coastal businesses and coastal ecosystems.

And as others have mentioned, Mr. Boesch, in particular, in the Deep Water Horizon's spill which killed 11 workers and was the largest environmental disaster in U.S. history is, kind of, the latest evidence that drilling is incompatible with our coastlines.

But again, we mention that really think this isn't just about drilling, it's about climate change. We think this fight, the climate fight, makes this campaign much more urgent. For us, the evidence is clear. The National Climate Assessment says unequivocally the planet is warming and over the last half century this change has

been driven, predominately, by the burning of fossil fuels like oil and gas.

The President has acknowledged that if we're serious about fighting climate change two thirds of the fossil fuels need to stay under the ground where they are now, the coal, the oil and the gas. And we agree with the scientific community that we need to keep this oil in the ground if we're serious about fighting climate change.

Again, we mentioned how happy we are about the Obama Administration's fight on climate. The Paris Agreement and the recent treaty with Canada are just two of the most recent examples of that fight, and we think we can continue that by dropping the Arctic and the Gulf of Mexico and Cook Inlet out of the five-year plan.

And again, we talked about climate but we're starting to see that some of these catastrophic impacts of climate change, they're already starting to happen here in the United States, including in states that would be impacted by the five-year plan.

In Louisiana, that state loses a football field's worth of land every hour. The state is also home to some of our nation's first climate refugees, the Choctaw and the Houma, who are losing their traditional lands and homes due to sea level rise and some of the impacts of climate change.

The same is true on Alaska's North Slope, where 26 communities have been impacted by climate change. Alaska's warming up more than most places in the country. The temperatures there have risen over six degrees just in the summer.

As I mentioned there are 26 communities that have been suffering. There are residents here from Point Lay and Shishmaref, who have suffered the impacts of climate disruption. And so it's interesting that these villages are being impacted but also so is oil and gas infrastructure where the drilling season has been disrupted because of the impacts of climate change.

So and then the last thing about the industry itself is it's interesting that BOEM has continued to keep the Arctic in the five-year plan even though Shell and the oil industry itself seems to be less interested than they were before.

We saw Shell have a very bad experience there in 2012 trying to drill an exploratory well that didn't work for them in 2015. They didn't find a significant amount of oil. And just last week we found out through our friends at Oceania, who found out that most of the companies who have leases right now in the Arctic Ocean have renounced those leases.

So you're seeing even it's not just the environmental community that's questioning how viable the Arctic should be as an oil and gas field, but the industry itself is starting to question that.

Finally, I know we're running out of time, but we're very optimistic about solving the climate problem. We think clean energy is affordable. It's cheaper in many cases than dirty fuels, and those are the kind of energy future we want to see for the country and also want to see just transition, in terms of energy policy, but also the workers and the communities so they can find good paying jobs, represented jobs and jobs that are clean and go into the future.

But thank you for the time, and I appreciate the opportunity and look forward to our discussion and questions later.

Thank you.

[The prepared statement of Mr. Manuel follows:]



Testimony of
Athan Manuel
Director, Lands Protection Program
Sierra Club

Before the Senate Committee on Energy and Natural Resources
United States Senate Hearing on the Bureau of Ocean Energy Management's 2017-2022 OCS
Oil and Gas Leasing Program.

May 19, 2016

I. Introduction

Chairwoman Murkowski, Ranking Member Cantwell and members of the Committee, good morning. My name is Athan Manuel, and I am the Director of Lands Protection for the Sierra Club. I am here representing the more than 2.4 million Sierra Club members and supporters who belong to more than 65 chapters and 450 groups nationwide. We are the largest and most influential environmental grassroots organization in the country. I am very appreciative of the opportunity to testify this afternoon regarding the Bureau of Ocean Energy Management's 2017-2022 OCS Oil and Gas Leasing Program.

In January 2015, the Department of the Interior and Bureau of Ocean Energy Management (BOEM) released the Draft Proposed Plan for the 2017-2022 OCS Oil and Gas Leasing Program. That draft included planning areas in the Gulf of Mexico, off the coasts of Alaska, and in the mid-Atlantic Ocean.

The Sierra Club was pleased when on March 15, 2016, the Obama Administration and Secretary Jewell heeded the call of tens of thousands of Americans up and down the East Coast and announced that the Atlantic planning areas were no longer part of the new draft of the 5-year plan.

Unfortunately the second proposal of the 2017-2022 Program still includes 13 potential lease sales: ten in the central and western Gulf of Mexico planning areas, and three proposed for Alaska in the Chukchi Sea, Beaufort Sea, and Cook Inlet.

The Sierra Club strongly opposes any leasing or drilling in the Outer Continental Shelf. Offshore drilling and leasing in the central and western Gulf or in Alaska would threaten billion dollar coastal economies, allow pollution and spills to continue to damage fragile and priceless coastal ecosystems, prolong our dependence on fossil fuels, and accelerate global climate disruption.

History has shown that offshore drilling leaves behind a dirty and dangerous legacy. The Gulf of Mexico has still not recovered from the 2010 BP Deepwater Horizon disaster, and oil continues to wash ashore on Gulf beaches from this spill and the nearly 150 that have occurred since 2012, while not surprisingly, commercial fisheries and marine populations have not fully rebounded.

Even if oil companies practice strict safety standards and prevent additional spills we cannot expect this to be resolved overnight. In fact, more than 27 years after the Exxon Valdez disaster, fisheries and marine mammal populations of Prince William Sound have still not yet recovered.

Even though some much needed reforms were enacted in the wake of the Deepwater Horizon disaster, new oil and gas leasing and drilling still leads to more pollution and more catastrophic spills. As the oil spill from Shell Oil's operations in the Gulf just last week further demonstrates, spill prevention and response technologies are lacking in even the most ideal of weather and infrastructure conditions.[1]

New offshore leasing and drilling is also at odds with fighting climate disruption and transitioning the United States off of fossil fuels. The May 6, 2014, National Climate Assessment is crystal clear: the planet is warming, and over the last half century, this change has been driven predominantly by the burning of fossil fuels like oil and gas.

The President has acknowledged that two-thirds of the world's existing fossil fuels must stay in the ground if we are to prevent the worst impacts of climate disruption. The Sierra Club and an overwhelming majority of the world's leading climate scientists agree.

If we are serious about avoiding the most catastrophic impacts of climate change, we have to transition onto clean, renewable energy sources and keep dirty fuels like oil and gas in the ground. That should start with protecting fragile areas and regions that have not yet been open to exploration.

President Obama and his administration have done more to combat climate change than any other in American history, and Sierra Club has called on him to extend this legacy by protecting the Gulf of Mexico and Arctic Ocean--like the Atlantic Ocean before it--from offshore drilling. The final 2017-2022 five-year plan has to be developed in the context of the administration's strong commitments to addressing climate change, including: the Paris Agreement to steadily and verifiably reduce carbon emissions by 28 percent by 2025, and hold the increase in global

temperature average to “well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels;”^[2] the President’s recognition that leaving oil in the ground is a critical component of limiting carbon emissions and meeting emission goals; [3] and commitments President Obama has made in the U.S.-Canada Joint Statement on Climate, Energy, and Arctic Leadership that the U.S. “play a leadership role internationally in the low carbon global economy over the coming decades, including through science-based steps to protect the Arctic and its peoples” and to protect at least 10% of Arctic marine areas by 2020.[4]

A simple and necessary way to do that is to not lease any areas in the Gulf of Mexico, Cook Inlet and the Arctic Ocean as part of the final 2017 - 2022 Outer Continental Shelf Oil & Gas Leasing Program.

II. Drilling is not compatible with our coasts, or our climate

Offshore drilling is too dirty to allow off of our coasts. According to the National Academy of Sciences, a single well produces between 1,500 and 2,000 tons of waste material including drill cuttings and drilling muds. This mud, which is produced and brought up during the drilling process, contains toxic lead, cadmium, and mercury. Other pollutants, benzene, arsenic, zinc and other carcinogens and radioactive materials are routinely released in “produced water,” brought up with the oil or gas. This pollution is not registered as spills, but rather is exempt from certain standards and considered a part of normal operations.

There is a significant threat of contamination with any oil and gas operation. Not only from spills, but from leaks that can often go undetected in offshore wells. BOEM estimates that well over 500,000 barrels of oil have leaked into American waters in the past 45 years, unreported.

Where drilling takes place, it’s a question if when, not if a spill will occur. There have been at least 347 large spills (more than 2,000 gallons) in the OCS since 1964. Smaller spills are a regular and chronically unaddressed occurrence. The results of an oil spill are often catastrophic for marine life and coastal economies. When oil reaches our beaches, it clings to every rock and grain of sand. As the Deepwater Horizon experience so amply demonstrated, even in calm waters thick with infrastructure, current cleanup methods are incapable of removing more than a small fraction of the oil spilled.

In fact, there is strong evidence that oil actually becomes more toxic over time, as it slowly degrades in the environment. Often, the last compounds to degrade are known human carcinogens.

Offshore drilling operations are especially vulnerable during hurricanes, a very real threat in the Gulf of Mexico where the majority of oil drilling occurs. In 2005, hurricanes Katrina and Rita caused 124 oil spills. Between the two storms, 741,000 gallons were spilled in the Gulf of Mexico.

The 2010 Deepwater Horizon oil spill dramatically demonstrated how drilling can destroy fishing and tourism industries, and cost rather than create jobs. The explosion itself took 11 lives and resulted in the longest lasting and most voluminous spill in history. More than 200 million gallons of oil were spilled in the Gulf of Mexico, affecting 16,000 miles of coastline and an estimated 68,000 square miles of Gulf waters.[5]

The National Wildlife Federation reports that “approximately 1,000 bottlenose dolphins have been found dead in an area stretching from the Florida panhandle to the Texas-Louisiana border. In 2014, dolphins were found dead at more than twice historic rates in this area. Dolphins in heavily oiled Louisiana were found dead at four times historic rates.”[8] *The New York Times* reported that “From 2002 to 2009, the Gulf averaged 63 dolphin deaths a year. That rose to 125 in the seven months after the spill in 2010 and 335 in all of 2011, averaging more than 200 a year since April 2010.”

Six years later, many businesses are still struggling to recover and approximately 10 percent of the oil from the BP rig is thought to still lie on the ocean floor in the Gulf of Mexico. The National Commission on the incident not only found inadequate knowledge of the coastal habitat before the spill, but unknown “human and natural impacts” of the spill.

The importance of coastal habitats and communities to our nation cannot be underestimated. Americans take almost two billion trips to the beach each year and spend billions of dollars in coastal communities. Our coastal recreation and tourism industry is the country’s second largest employer; for every one job in the oil and gas sector, there are 84 jobs in the region’s leisure and hospitality industries. According to the World Tourism & Travel Council, tourism in America employs over 14.7 million people, 10 percent of the American workforce, and accounts for 8.8 percent of the national GDP, bringing in \$1.3 trillion.

In addition to tourism, coastal economies are heavily reliant on commercial and recreational fishing. The two generate close to \$200 billion annually in sales and support more than 1.4 million jobs. Recent research by the University of South Florida’s College of Marine Science in St. Petersburg documents that tissue samples from both shallow and deepwater fish show large increases in concentrations of polycyclic aromatic hydrocarbons found in the oil, which affects fish health, behavior and reproduction.[6] Commercial crabbers have reported a drop in blue crab populations in the years after the disaster. Between 2011-2014 blue crab harvests were 20 percent lower than they were in the ten years prior to the disaster.[7]

Finally, oil and gas drilling accelerates global climate change, causing our planet’s temperatures to rise more quickly. Average global temperature has increased by more than 1.3°F over the last century.[9] Following a year of climate disasters – from droughts and wildfires to record heat and wildfires – it is clear that we cannot mitigate climate disruption with more of the same.

Areas that could be opened as part of the 2017-2022 Plan are already being impacted by rising sea levels, a problem that will only get worse if we do not get serious about fighting climate disruption and keeping fossil fuels in the ground.

It is estimated that every hour, the state of Louisiana loses a football field–sized area of land, wetlands and marshes.[10] The state is also home to some of our nation's first climate refugees, the Biloxi-Chitimacha-Choctaw Tribe of Isle de Jean Charles.

The same is true on Alaska's North Slope. Since the mid-20th century, Alaska and the Arctic have been warming about twice as fast as the global rate. Over the past five decades, average Alaska temperatures have increased by 3.4 degrees Fahrenheit, with the increases most pronounced in winter at 6.3 degrees.[11]

More than 26 villages and communities in Alaska are facing erosion problems, and an average of 4.6 feet has been lost each year since the mid-20th century on the North Slope, according to a U.S. Geological Survey report.[12] Both of these problems will get worse if the climate continues to warm.

Ironically, villages are not the only victims; onshore oil field infrastructure is also threatened by climate change.

III. Gulf of Mexico

For too long, the central and western Gulf of Mexico planning areas have been left vulnerable to oil and gas drilling. The 2010 Deepwater Horizon explosion, which killed 11 workers, is the most dramatic example of the problems and tragedies caused by the oil and gas industry and our dependence on fossil fuels. Problems with drilling continue to plague the Gulf, as just last week Shell spilled more than 88,000 gallons of oil 90 miles off the coast of Louisiana.

The onshore infrastructure needed to support the oil industry has also harmed the Gulf Coast. Dredging to create canals for pipelines has released the sediment that composes barrier islands. Freshwater plants have been contaminated with saltwater, killing the plant life that holds the soil in place. These depleted barrier islands have made the region more vulnerable during hurricanes, as there is less of a buffer zone between a storm and the mainland.

While we are acutely aware that drilling on existing leases in the Gulf of Mexico will not end overnight, it is crucial that the nation and especially the Gulf transitions away from fossil fuels and onto clean, renewable energy. Removing the central and western Gulf planning areas out of 2017-2022 OCS Oil and Gas Leasing Program is an ideal way to begin this transition.

IV. Alaska and America's Arctic

The new leasing and drilling in the Arctic Ocean and Cook Inlet included in the current draft of the five-year plan is particularly troubling. This area is too sensitive, too ecologically important, and as Shell's program's multiple failures consistently demonstrated, too volatile for oil drilling. The waters of the Chukchi and Beaufort Seas are home to the entire U.S. population of polar bears, millions of migratory birds, and endangered Bowhead whales. Oil leasing threatens the

sustainability of this natural area and the livelihood and integrity of Alaskan Native communities. We simply should not be holding more leases in our Arctic waters.

As Shell Oil proved during its 2012 and 2015 exploratory drilling operations in the Chukchi Sea, operating in the remote Arctic is a reckless and risky proposition and a poor business decision.[13] In September 2012, Shell's oil spill containment dome was damaged during a failed sea trial in the mild conditions off the coast of Washington state.[14] After five days of failing to get the containment dome certified with Bureau of Safety and Energy Enforcement, it "breached like a whale" then sunk more than 120 feet; about 12 hours later, the crew of the Challenger managed to get the dome back to the surface and a BSEE official noted that, "basically the top half is crushed like a beer can." [15] To end its 2012 season, Shell brought a national spotlight to the dangers of trying to drill in America's Arctic Ocean when its drilling rig, the *Kulluk*, ran aground off the coast of Kodiak Island, Alaska.[16]

Shell proved the dangers and inability to drill in the Arctic Ocean again in 2015. During a certification exercise, Shell nearly lost control of another vessel[17] and on its way to the Arctic, Shell's icebreaker containing the capping stack for well blowouts or other emergencies – the *MSV Fennica*, breached its hull and had to be sent back south for repairs.[18]

Even if we could extract oil safely, burning and releasing that much carbon into our atmosphere guarantees global climate disaster. The Arctic Ocean's oil and gas deposits could generate as much as 17.75 billion metric tons of new carbon dioxide pollution.¹

The Arctic has proven to be especially vulnerable to climate disruption. It is warming twice as fast as the rest of the country and specialized wildlife are struggling to keep up. Permafrost is melting, shifting building foundations and roads. Wildlife migration patterns are changing, which means hunters must travel further and take longer to feed their families. Our last wild frontiers should be permanently protected, not opened to drilling that will destroy landscapes, hurt local communities, and fuel climate disruption.

It is not just hundreds of thousands of Americans or Alaskan Natives who think that drilling in the Arctic Ocean does not make sense--the oil industry seems to be losing interest in the Arctic Ocean as well. Last year, citing a lack of industry interest, BOEM canceled two lease sales for the Arctic proposed as part of the 2012-2017 five-year plan. Then, less than two weeks ago, a Freedom of Information Request made by Oceana showed that that ConocoPhillips, Eni and Iona Energy have relinquished all of their leases in the Chukchi Sea and Shell has relinquished more than 150. Public statements from the company confirm that it plans to relinquish all of its remaining leases except one. Together, the four companies will give up more than 350 leases, encompassing more than 2 million acres.

¹Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf, 2011 (Includes 2014 Atlantic Update). (2014, December). Retrieved May 2, 2016, from <http://www.boem.gov/2011-National-Assessment-Factsheet/>

Simply put, there is no logical or compelling reason to include Alaska in the final draft of the 2017-2022 five-year plan.

V. Time to transition away for offshore drilling towards 100 percent clean energy

A transition is underway around the world: away from outdated dirty fuels and towards abundant, local, and affordable renewable energy sources. In the years ahead, this transition is poised to improve the quality of life for millions, reduce harmful greenhouse gas (GHG) emissions, and help forge a world that is more just and equitable for both current and future generations.

The Sierra Club firmly believes that the technical solutions already exist, and that with these advances, achieving 100 percent renewable energy is both possible and affordable. Economically, clean energy has become directly competitive with dirty fuels. For instance, our wind resource potential is estimated at 4,223 gigawatts, roughly four times the generating capacity of the current United States electric grid. More than half of new added energy capacity in 2014—nationally and globally—came from clean energy sources. In the Gulf of Mexico alone, we have the potential to generate 340.3 gigawatts of electricity from offshore wind when placed within 30 meters of the shoreline.²

Renewable energy sources will help us end our centuries long addiction to fossil fuels. The National Renewable Energy Laboratory (NREL) recently completed a multi-year study to evaluate the future of renewable energy technologies in the United States.[19] The study found that renewable energy sources available today, like wind and solar, are capable of providing 80 percent of our electricity by 2050. Combined with a more flexible electric system, renewables could meet the contiguous United States' electricity demands every day and every hour of the day. As a result, we will reap substantial environmental benefits; renewable used will reduce greenhouse gas emissions, helping to combat climate disruption, while solar photovoltaic and wind plants use little to no water. In addition, the NREL found that the cost associated with this level of renewable generation is comparable to other "clean-energy" scenarios, such as nuclear or natural gas.

Likewise, in the transportation sector, we will increasingly shift to electrification of our vehicles so that they rely on little to no oil. Even on today's electricity sources, electric vehicles are lower in greenhouse gas emissions than conventional vehicles. As we shift to more renewable sources of power, electric vehicles become even cleaner over time.

It is not just a transition off of fossil fuels that can and must happen, but a just transition for the communities and economies in the Gulf, the Arctic, and around the country that have been harmed by our continued dependence on fossil fuels.

²Offshore Wind Energy. (n.d.). Retrieved May 04, 2016, from <http://www.boem.gov/Renewable-Energy-Program/Renewable-Energy-Guide/Offshore-Wind-Energy.aspx>

As we further establish a clean energy economy, we cannot leave behind the workers and communities who have worked the oil rigs, who have inhaled the pollution, and who have suffered the consequences of climate. We must ensure that our clean energy economy creates economic opportunities across the country and invests robustly in research, development, and deployment of 21st century energy technologies. Congress can help drive sustainable investment and job creation in regions where industry has long abused and abandoned the land, air, water and people. It can also help accelerate global clean energy innovation with the goal of making clean energy widely affordable.

VI. Conclusion

The Sierra Club strongly opposes new oil and gas leasing and drilling, and has repeatedly called for the central and western Gulf of Mexico, Cook Inlet, and the Arctic Ocean to be taken out of the final 2017-2022 OCS Oil and Gas Leasing Program. Drilling is too dirty and dangerous, and is incompatible with President Obama's Climate Action Plan or the wishes of coastal communities.

New and continued offshore drilling would also contribute to an already warming climate and help keep the United States dependent on fossil fuels. The United States is leading the world in the fight against climate disruption, and new offshore drilling and leasing would undercut that leadership. The best path forward, for the Gulf of Mexico, Alaska, and our climate, is to keep the oil and gas in the ground and remove these locations--like the Atlantic Ocean--from the 2017-2022 five year plan.

Thank you again for the opportunity to submit testimony on the Bureau of Ocean Energy Management's 2017-2022 OCS Oil and Gas Leasing Program.

Addendum I: Revenue sharing

The Sierra Club strongly opposes revenue sharing from offshore drilling on the Outer Continental Shelf. In 1947, the Supreme Court granted the federal government "paramount rights" to the Outer Continental Shelf.[20] Citing the federal government's essential role in commerce and national security, the Court gave it "full dominion of the resources of the soil under that water area, including oil." [21] This ruling was twice affirmed as states continued to bring claims to the OCS.[22]

Although our coastal waters belong to all Americans, revenue sharing would divert billions of dollars in federal revenue to just a handful of coastal states. Annual revenues from mineral leases on federal lands are one of the government's largest sources of non-tax income. Last year, revenues from offshore oil and gas leasing and production totaled nearly \$7 billion.[23]

Recent estimates place the deficit for this fiscal year at \$642 billion.[24] Several members of Congress have referred to this as the biggest, most fundamental challenge we face. [25] Yet in

a time of sequestration and budget challenges revenue sharing will deplete federal revenues and increase the deficit.

In addition to being ill-considered from a national economic perspective, revenue sharing would provide an incentive for coastal states to agree to new or additional offshore oil and gas development, development that could put booming local economies at risk. While only a few big oil companies will profit from drilling off of our coasts, all Americans stand to profit from keeping our oceans, beaches, and coastal economies clean and healthy.

Addendum II. Seismic Testing

While the Atlantic lease sale has been removed from the 2017-2022 Proposed Program, the process for allowing geological and geophysical (G&G) oil and gas exploration in the Atlantic continues to move forward on a separate regulatory track, based on an environmental review and Record of Decision issued by BOEM in 2014.

With Atlantic drilling off the table for years to come, BOEM should deny pending permit applications for G&G exploration in the Atlantic. Granting these exploration permits would allow seismic airgun blasting in the Atlantic that would cause large-scale harm to marine life in an area spanning from Delaware to central Florida. A significant body of scientific research has established that seismic airgun blasts cause harm to fish, invertebrates, and marine mammals. Just last month, 28 marine biologists who are experts on the critically endangered North Atlantic Right Whale sent a letter warning that Atlantic seismic surveys could jeopardize the survival of the species.

The Outer Continental Shelf Lands Act requires the Bureau to deny an exploration permit when the permit would "be unduly harmful to aquatic life." Since the Atlantic Ocean is no longer included in the 2017-2022 plan, granting the exploration permits now would cause undue harm, and BOEM should deny the pending permit applications for the following reasons:

- New technology that is almost ready for commercial use may reduce the impacts of seismic exploration;
- Changed circumstances which prompted the Bureau to revisit its Endangered Species Act review, such as the designation of critical habitat for loggerhead sea turtles and right whales, should be fully analyzed in an Environmental Impact Statement to help the Bureau and the public better understand the risks and impacts of seismic exploration; and
- The Bureau should use new information, resulting from revised acoustic guidelines under development by the National Marine Fisheries Service, to assess the harm from seismic to marine mammals.

[1] <http://abcnews.go.com/US/wireStory/coast-guard-shell-line-leaks-88200-gallons-gulf-39081020>.

[2] Paris Agreement art. 2, ¶ 1(a), adopted Dec. 12, 2015, FCCC/CP/2015/L.9, *available at* <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>.

[3] See e.g., Remarks of President Barack Obama – State of the Union Address As Delivered (Jan. 13, 2016), <https://www.whitehouse.gov/the-press-office/2016/01/12/remarks-president-barack-obama-%E2%80%93-prepared-delivery-state-union-address> (“how do we make technology work for us, and not against us -- especially when it comes to solving urgent challenges like climate change?”); see also *Statement by the President on the Keystone XL Pipeline*, The White House (Nov. 6, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline> (“[I]f we’re going to prevent large parts of this Earth from becoming not only inhospitable but uninhabitable in our lifetimes, we’re going to have to keep some fossil fuels in the ground rather than burn them and release more dangerous pollution into the sky.”)

[4] The White House, Office of the Press Secretary, U.S.-Canada Joint Statement on Climate, Energy, and Arctic Leadership (March 10, 2016), <https://www.whitehouse.gov/the-press-office/2016/03/10/us-canada-joint-statement-climate-energy-and-arctic-leadership>.

[5] Fikes, Ryan, Alisha Renfro, and Lacey McCormick. “Five Years & Counting Gulf Wildlife in the Aftermath of the Deepwater Horizon Disaster.” National Wildlife Federation. National Wildlife Federation, 09 May. 2016. Web. 8 Apr.

[6] 6 years later, USF charting long-term effects of BP oil spill; Anastasia Dawson; *The Tampa Tribune*; April 18, 2016; <http://www.tbo.com/news/education/6-years-later-usf-charting-long-term-effects-of-bp-oil-spill-20160418/#sthash.FpD0zsg2.o5xATEaG.dpuf>; <http://www.tbo.com/news/education/6-years-later-usf-charting-long-term-effects-of-bp-oil-spill-20160418/#sthash.FpD0zsg2.o5xATEaG.dpuf> <http://www.tbo.com/news/education/6-years-later-usf-charting-long-term-effects-of-bp-oil-spill-20160418/#sthash.FpD0zsg2.dpuf>

[7] “DEEP WATER: The Gulf Oil Disaster and the Future of Offshore Drilling.” National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling: 9. Jan. 2011. Web. 09 May. 2016. <<http://www.gpo.gov/fdsys/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf>>.

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[21] *Id.* at 39.

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Acknowledgements

This testimony was prepared with help from: Virginia Cramer, Jonathon Berman, Natalie Mebane, Radha Adhar, Gina Coplon-Newfield and Liz Perera at the Sierra Club; Lara Levison at Oceana; Peter Van Tuyn and Karen E. Schmidt at Bessenyey & Van Tuyn, LLC. Though they helped prepare parts of this testimony that assistance does not mean that each group listed endorses the entire document.

The CHAIRMAN. Thank you, Mr. Manuel.
Dr. Mason, welcome.

**STATEMENT OF DR. JOSEPH MASON, HERMANN MOYSE, JR./
LOUISIANA BANKERS ASSOCIATION CHAIR OF BANKING, E.
J. OURSO COLLEGE OF BUSINESS, LOUISIANA STATE UNI-
VERSITY**

Dr. MASON. Thank you, Chairwoman Murkowski, Ranking Member Cantwell, members of the Committee for inviting me to testify today on the BOEM's 2017 to 2022 OCS oil and gas leasing program.

I'm an economist. I'm not here today to opine on environmental science. I leave that to my daughter, who is pursuing a Ph.D. in environmental biology and spending considerable in Alaska in the course of her studies. She always puts me right. [Laughter.]

Rather, I am here to discuss the sometimes perverse incentives created and destroyed by energy policy.

Overall, the BOEM plans to cut leasing in the Arctic, the Atlantic and the Gulf of Mexico. The BOEM's 13 planned sales are down from 15 in the prior five-year plan and 16 in the plan before that. It's not surprising then that many view the current plan as a cut back.

But despite recent low oil and gas prices, oil and gas leases are more valuable to the industry than ever, as well as being crucial to income and state and local tax revenues and jobs in the Gulf region.

Most development projects take five to ten years from discovery to production. As a result, the first barrel of oil from projects under the current plan will not be sold until roughly 2022 to 2027. Today's prices are certainly lower than at the time of the prior five-year plan, but today's interest rates in an environment of low inflation expectation are also lower.

We teach in finance that interest rates can often be much more important for valuation than flat prices, and the current case is no exception. Yet, BOEM uses a flat three percent in their analyses.

Consider that in March 2009, Moody's seasoned Baa corporate bond yield was 8.42 percent while today it is 4.79 percent. On that basis, the value of an even stream of production across the period starting five years from now and lasting for another 15 years, is more than six percent greater than in 2009 despite the low oil and gas prices.

With higher risk projects the gains are even greater. B of A Merrill Lynch Emerging Markets Corporate Plus Index Effective Yield started 2009 at 14.45 percent while today it is 4.86 percent. Solely because of lower interest rates the value of an even stream of production, again, across the period starting five years from now and lasting for another 15 years, is 51 percent greater than in 2009.

So counter to lay intuition, market interest rates can matter more to lease values than prices, thus the Federal Government is better off selling leases today rather than waiting for inflation expectations to rise. As I showed in some of my prior studies substantial economic benefits of such leasing of crude, even in the short-term.

For instance, Shell sunk more than \$7 billion into the development for drilling in Alaska before abandoning the Chukchi Sea project. It's estimated that Shell will spend another \$1 billion before they wrap up obligations relating to the leases. Shell's experience is by no means unique. Since the early 2000's large scale projects have required considerable upfront investment.

Using the estimation method for my prior studies of the economic contributions of Gulf Energy resources, the lease plan under consideration today will contribute roughly some \$457 million to \$747 million in annual GDP to the Gulf states, create 1,604 to 2,567 jobs for the duration of the development, contribute wages of roughly \$91 to \$146 million to the region annually and result in state and local tax revenues of \$21 to \$34 million annually just during the developmental phase.

The take away here is that every lease that's withheld sacrifices considerable economic growth. Economic growth that the Gulf states and Louisiana can't spare in the present business environment.

But before I conclude, I want to add one additional detail that I don't think my daughter will object to. Counterintuitively, the BOEM's cutbacks have a perversely adverse effect on CO2 and global warming. A recent research project out of Stanford University and the University of Calgary, funded by the Carnegie Endowment, estimating the total carbon footprint of oil from 30 different regions around the world, shows that oil from the Gulf of Mexico is some of the cleanest. So by restricting clean output in the Gulf, BOEM is not only sacrificing jobs and growth in the Gulf region, it's incentivizing dirtier production elsewhere in the world.

We need a smart energy policy that can tail off the dirtiest production, not encourage it without needlessly sacrificing jobs and growth for our fellow countrymen.

Thank you.

[The prepared statement of Dr. Mason follows:]

U.S. Senate Committee on Energy and Natural Resources

Hearing on the

Bureau of Ocean Energy Management's 2017-2022 OCS Oil and Gas Leasing Program

May 19, 2016

Testimony of Dr. Joseph R. Mason

The Committee has convened today to discuss the Bureau of Ocean Energy Management's 2017-2022 OCS Oil and Gas Leasing Program. Overall, that program plans to cut leasing in the Arctic, the Atlantic, and the Gulf of Mexico. According to the BOEM, "The Proposed Program schedules thirteen potential lease sales in four program areas in all or parts of six OCS Planning areas: ten sales in the combined Gulf of Mexico (GOM) Program Area, and one sale each in the Chukchi Sea, Beaufort Sea, and Cook Inlet Program Areas offshore Alaska. No lease sales are proposed for the Pacific or Atlantic OCS."¹ This is down from twelve lease sales in the Gulf of Mexico and three in the Arctic (two of which were cancelled) in the prior five-year plan and sixteen planned sales in the plan before that.

Generally, the industry views the current plan as somewhat of a cutback. I am of the opinion that the current environment is one in which the BOEM has the opportunity to lease more, not less, in a favorable market environment and create economic output and with it jobs, income, and state and local tax revenues that can assist the economic development of communities in the Gulf of Mexico region.

The typical five- to ten-year lead time for production means that we are planning for the future, not the present

In order to understand my reasoning, it is important to recognize that most development project take five to ten years from discovery to production. The EIA recently outlined discovery-to-production times for a variety of deep-water Gulf of Mexico projects that began production in 2015 or are expected to begin production in 2016 and 2017.

¹ See 2017-2022 OCS Oil and Gas Leasing Program at <http://www.boem.gov/Five-Year-Program-2017-2022/>

The longest lead times were for the Perdido and Stones projects – both developed by Shell – which have taken about eleven years apiece for drilling and production in roughly 10,000 feet of water. Project development time is positively related to depth, so that shallower projects come on line faster. Overall, the average development time for those projects cited by EIA is five-and-a-half years from discovery to productions.²

Thus, the plan being discussed today will affect production starting in roughly 2022 and lasting twenty-five to thirty years beyond. While some might desire the shortfalls in future years that may help raise prices, I would argue that the inflexibility that would result from engineering policy through long-tailed leasing irreversibly creates risks that jeopardize U.S. economic growth; if Congress wants higher energy prices they can just tax consumption and retain the flexibility to meet the energy demands of the 2020s and 2030s.

Low prices are not a reason to forgo leasing

It is important to recognize that low prices are not the problem here. Because the first barrel of oil from these projects will not be sold until 2022-2027, today's prices are much less relevant. In fact, what is far more relevant is today's interest rates.

Today's rates are important because – with low inflation expectations – firms can still borrow cheaply to develop the new leases. Moreover, today's low rates mean that the leases are more valuable to firms now than they will be when inflation (or new market risk) rears its ugly head.

Consider that in 2009, the Moody's Baa spread was 5.72%, while today it is 2.90%. As a result, the value of an even stream of production across the period five years from now for another fifteen years is 2.84% greater than in 2009, when oil prices were much higher.

Moody's Seasoned Baa Corporate Bond Yield was 8.42% in March 2009, while today it is 4.79%. On that basis, the value of an even stream of production across the period five years from now for another fifteen years is 6.27% greater than in 2009.

The BofA Merrill Lynch Emerging Markets Corporate Plus Index Effective Yield started 2009 at 14.45%, while today it is 4.86%. Solely because of lower interest rates, the value of an even stream of production across the period five years from now for another fifteen years is 50.50% greater than in 2009.

Thus the Federal Government is better off selling leases today rather than waiting for inflation expectations to rise, at which point the net present value lease bids will go down. Counter to one's intuition, interest rates matter more to lease values than current prices.

² EIA, "Oil production in federal Gulf of Mexico projected to reach record high in 2017," Feb 18, 2016 at <https://www.eia.gov/todayinenergy/detail.cfm?id=25012>.

The economic impact of development is large

As I showed in some of my prior studies, the development phase is economically rich with opportunities for jobs, income, GDP growth and state and local tax revenues from a healthy economy.

It is well-known that development costs are considerable. For instance, Shell sunk more than \$7 billion into development for drilling in Alaska before abandoning the prospect. It is estimated that Shell will spend another \$1 billion before they wrap up obligations relating to the Chukchi Sea leases. While Shell may be allowed to continue activity at a later date, as of now the investment has resulted in zero production.³

Shell's experience is by no means unique. Since the early 2000s, large-scale projects have required considerable up-front investment. For instance, Chevron's 2002 "Tahiti" project in the Gulf of Mexico—which involves fields lying 100 miles off the U.S. coast at a depth of 4,000 feet—found "an estimated 400 million to 500 million barrels of recoverable resources."⁴ Chevron estimated that it would take seven years to build the necessary infrastructure required to begin production at Tahiti. The field was estimated to require an investment of about "\$4.7 billion [in then-current dollars]—before realizing \$1 of return on ... investment."⁵

Using the estimation method from my prior studies of the economic contributions of Gulf energy resources, the lease plan under consideration today will contribute roughly some \$457 million to \$747 million in GDP to the Gulf states, create 1,604 to 2,567 jobs for the duration of seven years, contributing wages of roughly \$91 million to \$146 million to the region, and result in state and local tax revenues of \$21 million to \$34 million.

The takeaway here is that every lease that is withheld sacrifices considerable economic growth, economic growth that the Gulf states and Louisiana cannot spare in the present business environment.

Conclusion

In light of discussions of cutting Revenue Sharing, as well as other state assessments in the Gulf region, those numbers are important.

But potentially even more important is the effect that the BOEM's decisions are having on CO₂ and global warming. A recent research project out of Stanford University and the University of Calgary, funded by the Carnegie Endowment, is showing convincingly that every barrel of oil's carbon

³ Dlouhy, Jennifer A. "Shell leaves door open for future exploration in Alaska's Arctic," Houston Chronicle, November 2, 2015 at <http://www.adn.com/article/20151102/shell-leaves-door-open-future-exploration-alaskas-arctic> (Last accessed Nov 30, 2015)

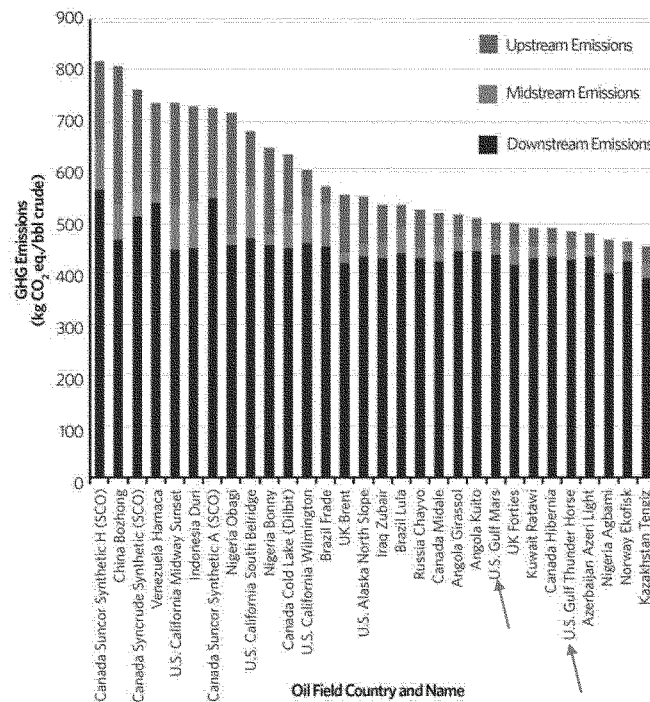
⁴ Statement of Peter J. Robertson, Vice Chairman, Chevron Corp., Prepared for the House Select Committee on Energy Independence and Global Warming, Apr. 1, 2008 [hereinafter Chevron Testimony], at 6 ("In 2002, we used leading-edge technology to drill in 4,000 feet of water and found an estimated 400 million to 500 million barrels of recoverable resources. It will take seven years to build the infrastructure required to produce the oil and gas more than a 100 miles offshore.")

⁵ *Id.*

footprint is not equal.⁶ In fact, oil from the Gulf of Mexico has among the lowest carbon footprint of that produced from 30 different regions around the world.

Thus, restricting output in the Gulf will only increase output in many of those dirtier oil fields elsewhere around the globe. We need a smart energy policy that can tail off the dirtiest production, not encourage it.

Total GHG Emissions for 30 Phase 1 OCI Test Oils



⁶ http://camegieendowment.org/files/know_your_oil.pdf

The CHAIRMAN. Thank you, Mr. Mason.

I want to start where you have left off this afternoon, because we had a hearing before the Energy Committee just a couple weeks ago about how the Federal Government should respond in a low price environment such as what we are experiencing now. You have outlined some of what you have described as, kind of, the perverse outcomes and outcomes that one might not expect in a low price environment.

I think you have outlined well that it is not just the price that you need to look to, it is the interest rates as well and that BOEM should respond now, taking advantage of the fact that we are in this environment.

Director Hopper, let me ask you to respond to that because I think what Mr. Mason has outlined is very important. When we withhold the leases, particularly at this time, you do constrain economic opportunity. How do you respond within BOEM to what he has outlined here this afternoon?

Ms. HOPPER. Thank you for that question.

So I would point to two things. One is that we, under our current lease plan, as we are in a low oil price environment at the moment, we are continuing with the lease sales in the Gulf of Mexico. And if you look at the trajectory over the last few years the amount of acreage we're offering is consistent but the number of leases that are being bid on by companies has declined steadily. And I think that speaks to, kind of, the economic realities that companies are facing in this oil price environment.

And so, I think I would argue that's not just an interest rate, but sort of the available capital that those companies have.

And then in our plan for the next five-year program, we do look at different price scenarios. So we don't make any assumption about what the oil price will be. We look at \$40, \$100 and \$160 barrel prices, sort of, to game out different scenarios that would happen. I think that kind of sensitivity analysis addresses some of his concerns about sort of locking us into any particular price point.

The CHAIRMAN. Well in recognizing the long lead times that it takes, particularly in a place like the Arctic, I think we recognize that if you had Arctic lease sales being held today that Americans don't see the benefit from that oil for years, considerable years, from where we are.

Again recognizing what you have outlined Mr. Mason in terms of the multiple factors that are at play there, I would like to think that it is not a low price environment that would drive some of the decisions coming out of BOEM.

Director Hopper, you know that my top priority for the '17 through '22 plan has been to maintain the three Alaska sales that BOEM has proposed. The entire Alaska delegation has submitted a letter to you. Governor Walker has joined in the support as well as the vast majority of Alaskans.

Now you mentioned in your opening comments that part of the rationale for removing the Atlantic sale was opposition from some coastal communities and citizens. You have also outlined in your statement the meetings that you have attended with folks up in the states in various communities. How would you describe the

views of most Alaskans and of the Alaska State Government in terms of supporting or opposing lease sales in the OCS right now?

Ms. HOPPER. I'll start with the second half of your question because I think it's a little simpler that the meeting with your Governor, your Lieutenant Governor, obviously reading the letters from you, I would say there's consistent support to keep the Alaska sales in the next five-year plan.

In my meetings with, and I was in—on the North Slope, I would say there was a real variety of opinion. I did not leave with one consensus opinion. There were folks like the Mayor who were very articulate in their support for keeping offshore oil and gas development in the next five-year plan. There were others who were equally articulate and passionate about removing those sales. So I think it is a much more complicated and nuance conversation than some I'd appreciate.

The CHAIRMAN. I am assuming you are aware of the many public opinion polls that have been conducted including one from 2014 that showed more than 70 percent of Alaskans support development within our region of the OCS? So it is not just going to specific communities.

Ms. HOPPER. Right.

The CHAIRMAN. And talking to a few key individuals, but the broader statewide support for advancement of these sales in the Arctic OCS.

Ms. HOPPER. Yes, yes, Chair. Madam, I'm aware of that, thank you.

The CHAIRMAN. I guess the bigger question is whether you will treat that lack of local opposition and the overwhelming support of Alaskans in favor of development as a reason to retain the three Alaska OCS sales in the final program?

Ms. HOPPER. I think, Chairman, it would be premature to make any statement about the fate of those Alaska sales in the final program. The Secretary, as I mentioned, as you know, she has several factors that she has to consider, the position of the state government is one of them. The other uses of the ocean is another important one which is where some of the local input comes in. And so, she will take those as well as the other statutory factors in her decision.

The CHAIRMAN. Well I appreciate you saying that. I did happen to notice that today, as you were meeting with a group of Alaskans, and hopefully a group that I am going to be visiting with very shortly, you tweeted a picture out of them, which I do not have any problem with that. In your tweet, you clearly outlined that they are opposed to drilling in the Arctic.

I looked at it and said it does not necessarily show me that there is impartiality within BOEM. I looked at it and said, you know, how do we not conclude that the die is already cast and that your agency has already decided what it is that you are going to be doing?

Ms. HOPPER. Well, I didn't write that tweet, but I am familiar with it. I'm sorry if you took that impression from it. Our agency tweets a lot of pictures from our meetings. We think it's a good way to represent the many stakeholders that we visit with.

The CHAIRMAN. Have you or your office tweeted a picture after a meeting with Alaskans who actually support drilling in the Arctic?

Ms. HOPPER. We certainly have tweeted many pictures from all of our public meetings and there were certainly Alaskans who were very supportive of oil and gas. So I wouldn't want to opine, you know, who exactly is in the photos, but we certainly have tweeted a variety of stakeholders that we've met with.

The CHAIRMAN. I want to get to my colleague from Louisiana here. I looked at your tweet and I thought this would appear to me that you are not acting with the level of impartiality that we expect the Agency to do.

Senator Cassidy.

Senator CASSIDY. Thank you, Madam Chair.

First I request that I be permitted to submit for the record an editorial we wrote. My office looked at the same research that Dr. Mason referred to that the Gulf of Mexico oil is far cleaner than that oil produced, say, by Iran. When we see market share it actually releases tons more greenhouse gases. That is not hyperbole; that is literal. I think it is 365,000 tons per year, if I remember correctly. So—

The CHAIRMAN. We will include that within the record. Thank you for bringing that up.

Senator CASSIDY. Thank you.

[The information referred to follows:]

5/19/2016

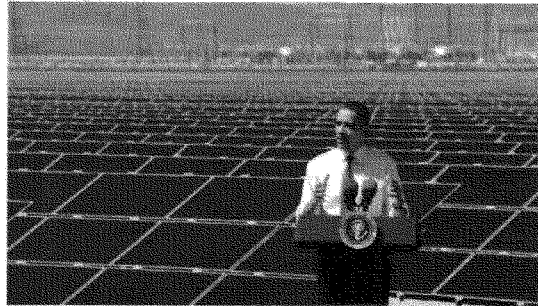
Obama's climate hypocrisy | TheHill



December 09, 2015, 11:00 am

Obama's climate hypocrisy

By Sen. Bill Casady (R-La.), M.D.



Getty Images

As the Paris climate talks continue, President Obama has repeatedly made clear his belief that no challenge poses a greater threat to future generations than climate change. The president and his administration have attempted to lower greenhouse gas (GHG) emissions by limiting domestic oil and gas production on federal lands, continuing the 40-year-old crude oil export ban (presumably to decrease oil consumption worldwide) and imposing regulations on the U.S. oil and gas exploration industry, designed to restrict U.S. oil production. This, while the president's Iran agreement allows Iran to increase their oil production by 2 million barrels per day by 2021 and gives them access to new global markets. If Obama wants to lower GHG emissions and simultaneously address that which most Americans think is the greatest threat—terrorism—he should allow Americans to explore for and export oil.

Unlike Iran, the U.S. has a long-standing commitment to conservation. America leads the world in both emissions reductions and production of oil and natural gas due to industry investment and advanced technology. While pushing the Iran deal, Obama failed to mention that Iran does not share our commitment to reducing emissions from oil production. The International Council on Clean Transportation and the Carnegie Endowment for International Peace determined that Iran emits almost three times the GHG per barrel during production of crude oil than that of U.S. producers in the Gulf of Mexico. Major oil rigs in the Gulf of Mexico emit 0.031 and 0.034 metric tons of CO₂ equivalents, a measurement of greenhouse gas emissions, per barrel while Iranian oil fields emit 0.070 to 0.099 metric tons of CO₂ equivalents per barrel. If this seems small, understand that if Iran increases oil production by 2 million barrels per day due to a vacuum the U.S. leaves in the market, they will emit 100,000 metric tons more of CO₂ equivalents per day. In a real sense, either the U.S. or Iran will supply oil to the international oil market. If it is the U.S., less GHG is emitted, if Iran, more GHG is emitted.

Despite this, less than one month after the president gave Iran access to export oil, he issued a threat to veto legislation that would allow U.S. oil exports. Both Republicans and Democrats support lifting the current crude oil export ban. Put in place in 1975, it's an outdated policy that denies American companies access to the global oil market. It also denies jobs and economic growth to Americans and the American economy.

According to the Aspen Institute, if the crude oil export ban was lifted, domestic crude oil production could increase by 3.25 million barrels per day by 2025. GDP would increase by \$165 billion in peak exploration and development years (2019-2021), continuing at \$141 billion per year in 2025. As 20 percent of GDP is typically paid in taxes to the federal government, this is \$33 billion per year towards domestic needs, such as paying down debt and financing defense and security. Related to this, a total of 630,000 jobs would be added at the peak in 2019. Americans' household income would increase by \$2,000 to \$3,000 in 2025. Conversely, the Iranian Central Bank predicted that increasing Iranian oil production and lifting the sanctions could mean their growth rate will increase to 5 percent. This is the same economy that finances terrorism throughout the Middle East and continuously undermines the stability of its regional neighbors, including Israel, Egypt and Saudi Arabia. Whichever country fills the international need for oil will advance their country's goals. It should be the U.S.

Despite the lower GHG emissions and the economic and security benefits of increased domestic energy production, the Obama administration has slowed energy production on federal lands and closed off areas of exploration and development of offshore oil. The Obama administration's draft five-year plan for 2017-2022 lists 14 lease sales—the lowest number in the 42-year history of the planning process. Currently, the administration's five-year offshore oil and gas leasing plan, which took effect on August 27, 2012, removed 1.42 billion acres of the 1.65 billion acres of available OCS lands—87 percent—and blocked any new oil and gas exploration off the Atlantic coast.

Bottom line, if American oil is exported, the demand for Iranian oil will decrease. This will result in tons less GHG emissions, more income for American workers, an increase in the U.S. GDP and a focus on American priorities. If American oil is not exported, these benefits will be seen by Iran.

<http://thehill.com/blogs/congress-blog/energy-environment/262531-obama-should-support-exporting-oil>

1/2

8/19/2016

Obama's climate hypocrisy | TheHill

If Obama really believes that no challenge poses a greater threat to future generations than climate change, and if he is willing to acknowledge that most Americans feel that terrorism poses at least an equally serious threat, he should support exploring for and exporting American oil.

Cassidy is Louisiana's junior senator, serving since 2015. He sits on the Appropriations; the Energy and Natural Resources; the Health, Education, Labor and Pensions; and the Veterans' Affairs committees.

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Senator CASSIDY. Ms. Hopper, hello.

When you took the Atlantic lease sales off the table I guess you gave several reasons, local opposition, being one you mentioned. Yet when I look at this—all four Governors of the affected states, all eight Senators, the majority of the congressional delegation, the majority of the public comments received by the agency and by polling, the majority of the folks polled in these states.

So just it just take a vocal minority showing up to derail that which governors, congresswomen and congressmen, Senators, those polled, etcetera, would otherwise want?

Ms. HOPPER. Senator, as you know there are many factors and many of which we cited in our decision. So the position of the state is one of them. The many uses of the ocean, the other uses of the ocean is another.

Senator CASSIDY. I will come to that.

Ms. HOPPER. Certainly.

Senator CASSIDY. But first, can a small vocal minority override the will of the majority of the people in a state, the Governors, the Senators and the Congress folk, specifically when the regulation suggests that you are supposed to consider the position of the governors and the governors are all for it?

Ms. HOPPER. That position was considered.

Senator CASSIDY. So back to my question. Does a small vocal minority override that overwhelming other wide support?

Ms. HOPPER. I can't answer that question because it was not the only consideration.

Senator CASSIDY. Okay, then let's go to some of the other reasons.

I think one of the other reasons given was about dual use. Other places, other entities have to use it. Now, the Gulf of Mexico has like 50,000 oil wells. We have a far more productive fishery than the Atlantic. We have 11 of the top 20 ports in the nation, and we have at least two air bases that use that area and the Atlantic is about 70 times bigger. Do I have that number right? How much? Seventy-five percent bigger.

So if we are going to have a problem with competing use it seems like we would have seen it with the 50,000 oil wells in the Gulf of Mexico not with a proposed oil well or oil wells in the Atlantic.

So tell me again the rationale for that competing use and why it is such an issue here but it has not been seen to be an issue in the Gulf of Mexico?

Ms. HOPPER. Sure. Certainly.

I think one of the really important differences between the Gulf and the Atlantic is that in the Gulf there is a long history of coexistence. Those industries developed and co-existed together. And you didn't start with 50,000, you started with a couple and those have grown together.

On the Atlantic, we were looking at a potential lease sale in an area that did not have development. There's certainly been a few exploratory wells in the past, but no development. And as you look at the, you talked about fishing, which is an important industry on the East Coast, the recreation I think Senator Cantwell—

Senator CASSIDY. Now can I come back to the recreation? There is a 50-mile buffer.

Ms. HOPPER. Certainly.

Senator CASSIDY. So it is beyond the sight line.

Ms. HOPPER. Right.

Senator CASSIDY. And it is beyond where most recreational people would be.

As we speak of that, again, I have a sense that BOEM decided what they wanted and they worked backwards to find rationale. I am looking at your answers and I do not mean to be disrespectful, but there is a lot at stake here, a lot of jobs, a lot of royalty, the prosperity of our country. So let me ask you this. You did approve for wind. BOEM has approved for wind farms offshore that obviously competes. It takes place. It still takes some construction.

What is the difference between the wind farms and the wells? Why would there not be an issue of competition with one, there is a competition with—and by the way, let me just also say, you also would not start it with 50,000 wells in the Atlantic either. It would gradually grow, if it grew at all.

But let's move on. So wind farms are okay but oil wells are not?

Ms. HOPPER. I think one of the important differences is as you look at development you have to look at the risk of an oil spill. There's no system we have in place that can guarantee there will be no oil spill. And so, that obviously is not a concern with wind farms. It is a concern with oil and gas development.

Senator CASSIDY. So it is an existential threat?

Ms. HOPPER. No, I wouldn't say it was existential, sir.

Senator CASSIDY. In the sense that it could occur, absolutely can occur and it has occurred in the past.

We do not venture so in a sense everything else, kind of, let's put it to the side because a vocal minority overriding is that is not as important.

And the competing use. Well, we have other reasons we will do windmills.

And the recreational. It is 50 miles off the border.

It ultimately comes back to the fear of the oil spill.

Ms. HOPPER. None of these are dispositive. They are—it's a cumulative analysis. And so if you try to get me to say one of them was the deciding factor, I'll not be able to do that.

Senator CASSIDY. I have to say that the original three and not a very good case has been made for it. I say that not to be assaultive, I don't. But when I look at your original three rationales that we discussed, none of them seem compelling. They just seem to kind of support where you already were if you decided to decide that way.

Okay, well in that case, we cannot prove a negative, right? We can never prove that something bad will not happen. So if we cannot prove a negative it sounds like we are going to be paralyzed in terms of never, ever, considering any other development because there might be something bad that happens. Fair statement?

Ms. HOPPER. I would not say that for every planning area I will say that's—that was one of the things we thought about—

Senator CASSIDY. Well if you cannot prove a negative and if that is a strong rationale as to not proceed, it just seems like that follows.

Ms. HOPPER. I don't agree.

Senator CASSIDY. Then how would you phrase it differently?

Ms. HOPPER. I would say that in some of our other areas in the Gulf of Mexico and in the lease sales in Alaska, we weighed those many factors and came to a different decision.

Senator CASSIDY. So the oil containment policies that you have in the Gulf of Mexico are not adequate for the Atlantic, that consortium that has been placed by the major oil companies to control any underwater oil spills? Is that inadequate?

Ms. HOPPER. I believe that if there was a similar kind of containment system—you keep trying to make me say that it was one piece and therefore that was inadequate, and I'm not willing to cede that point. It was several, several factors.

Senator CASSIDY. But it seems like it is, and again, not to be disrespectful, but Director, it seems as if none of them are very strong but cumulative they seal the deal which again, seems kind of counterintuitive. In fact, it just seems odd. None of the individual arguments are strong, but cumulatively they become strong. With all due respect it just seems as if you had a decision and you worked backward.

I will yield to the Chair, and I assume you have a second round? [Laughter.]

Ms. HOPPER. Thank you, Senator.

The CHAIRMAN. Yes, we do.

Well Director Hopper, you raised the risk associated with exploration in the Arctic OCS and the study or the review directed by Secretary Moniz to the National Petroleum Council, the review of Arctic development. I think that, perhaps, surprised a lot of people because of really the very, very favorable responses towards opportunities within the Arctic and recognizing that there are challenges out there.

I think dispelling some of the myths as to how hard or as to how risky. I do not know if I could ask you what recommendations out of that review you were perhaps most taken with, but I think clearly there is a recognition that you look to the potential that we have, you look to what we know with regards to our abilities to operate in the offshore. Certainly within the Arctic some of the risk, I think, has perhaps been overstated or the difficulty, the degree of difficulty, again, has been overstated.

I want to direct some questions to you, Mayor Hopson. Can you describe for the Committee the extent of the interactions that you have had as Mayor with BOEM on the development and evaluation of the 2017–2022 plan? To what extent have you been involved in consultation?

Mr. HOPSON. We had a meeting about a month ago with the—BOEM came in and had a community meeting, and in that meeting there was no opposition to oil and gas and OCS. There are concerns of the set asides that BOEM has introduced. It would be restricting the ability for our communities as well, and we've made that clear with BOEM. We've had one meeting. That's the extent, and I hope they understand our position.

The CHAIRMAN. So they came out to you, presented and you were able to express support or opposition?

Mr. HOPSON. I had asked the community to see if anybody is objecting to my comments in supporting oil and gas, and there was no one that stood up and objected to what I had said.

Another member of the community spoke in support of development. I've also asked the community if they objected to his statements, and there were none.

It's very clear that we need development, eight communities on the North Slope. As an Assembly member I have to figure out how I'm going to provide school, police, fire, health clinics and the budget is about \$400 million. The Federal Government will not give our region \$400 million a year to sustain us.

Find me an alternative, and I'll be willing to work with you or the Department, the Administration. Find me an alternative revenue source to provide a livelihood for my communities. We have no timber, we have no fisheries and we have no tourism. We are very isolated, and we have to rely on what we have which is a tax base from the Prudhoe Bay oil fields. Ninety-five percent of the board's budget comes from oil and gas, so every one of our eight communities is surviving on oil and gas money.

The CHAIRMAN. Mayor, I have made OCS revenue sharing a significant priority of mine. My colleague from Louisiana, a host, as a state of major offshore development. They have long fought for fair and equitable revenue sharing. They and the other Gulf Coast states. Alaska is not part of a revenue sharing proposal.

You have mentioned finding the resources whether it be to provide for policing or schools or roads. How significant would revenue sharing be to a community like Wainwright?

Mr. HOPSON. Revenue sharing would be a big thing in my community. We have an NPRA grant process for development or leasing in the NPRA, and we use funds to provide services for children, for elders and the community in general and to provide local government support for my city.

Revenue sharing from OCS would be a big thing, even to a small community like mine. And it may help, and it would help and will help other coastal communities as well in finding funding to provide recreation, just to name one, for our children.

The CHAIRMAN. You have mentioned that Wainwright and the other coastal villages up there, subsistence is how you live. It defines you, the hunt for the whale, not only as a food source but so much more. There is a recognition that subsistence takes money in order to go out to hunt, in order to go out to whale, it does take resources.

I think that perhaps there has been this misconception that it is an either/or proposition. You are either able to have an oil and gas development up on the North Slope and subsistence will no longer exist, that the whale will be gone, that the caribou will leave, or nothing. So it is an either/or choice.

Do you believe that is the case or do you believe that you can have development in your region that will allow for economic opportunity for jobs and revenue while still having the subsistence lifestyle that you and your family and families for generations have lived off of?

Mr. HOPSON. For the life of Prudhoe Bay it is proof that our communities can coexist with oil and gas with subsistence. A snow ma-

chine runs anywhere from \$10,000 to \$12,000. A boat runs, just an 18-foot boat with a motor, can run you anywhere up to \$20,000. Last year we were paying over \$7 a gallon just to drive my truck, my boat, my four-wheeler.

We need development. We need infrastructure to be able to tax so that we can employ people so they have the opportunity to hunt.

The world is banking on saving animals without thinking of my life, my children's life. Where are we going to live? If we shut down development we're—what are my options? Anchorage? Juneau? Washington, DC? Is that where I'd have to move to?

That's what we're looking at if we don't have the opportunity to develop. It's our only revenue to be able to live at home.

Hunting, you have to buy bullets. You have to buy supplies to outfit your hunt.

They talk about alternative energy. Wind-powered boats are not going to cut it. Solar-powered. We need oil and gas. We need unleaded fuel. We live off of diesel to heat our homes, and we need that as well. Every one of our communities, with the exception of Barrow and Nuiqsut, who has natural gas, all of us have stove oil to be able to do that.

I have to pay for my heating bill. I have to pay for my utilities, my telephone while at the same time buying supplies to go hunt. We have proven the two can coexist, development and subsistence.

People have been put to work when Shell came up. A lot of our community members were working. When Shell pulled out we are trying to find areas of where people can go back to work. They're unemployed. We need development. It just amounts to that.

Climate change is a big topic that I heard today as well. How are we allowing the Federal Government's public dollars to be spent here in Washington, DC if the Administration truly believes in climate change and the next 50 years in all models this city will be underwater? But you're not, the Government is not allowing us to build that home. That—where's the balance in that?

What about my life? We're the endangered species, not the animals, the people are.

The CHAIRMAN. Mayor, thank you.

I promised that I would let you finish your comment, Mr. Knapp, about seismic, and you have indicated that in terms of the updates in the Atlantic OCS.

I think I heard you right in saying that 80 percent of the data that we have has not been evaluated. I have a question on that as well as if we are to do new seismic surveys what would we see that is different from what we were able to obtain in the 70's and in the 80's?

Dr. KNAPP. Thank you for that question, Madam Chair.

So to clarify the reference to the 80 percent, that's 80 percent of the territory that was included in the draft proposed plan, has never had any surveying of a commercial nature.

So all of the previous surveying that had taken place was basically on what we call the Continental Shelf. But there's vast areas of the edge of the continent that were under consideration that have not only never had a well drilled but they've never even been imaged by seismic data. And that was the 80 percent.

The CHAIRMAN. Okay.

Dr. KNAPP. So I guess it gets to the issue about the new seismic data.

There's still vast areas on the Outer Continental Shelf which have never been imaged with any seismic data. But beyond that, the analogy I would make for the need for the new seismic data, I would say is with the Hubble Telescope when it was launched with great expectation and it all of a sudden came clear that there were problems with it. We couldn't see much. When they went up to actually fix the lens on the telescope all of a sudden we can see the whole universe.

And the analogy is that the way that seismic technology has evolved since these surveys were last acquired on the Atlantic is on that scale. It's amazing the level of technology and sophistication that goes into these modern seismic surveys. And then, so it's not just a matter of going out and retreading the same ground but it's ground that we simply can't see the level of detail that we would need to or any exploration company would, if they were serious about going to explore for oil and gas.

And part of that is also that essentially all of the data that were collected in the 70's and 80's were what we refer to as 2D data. The state of the art nowadays is not only 3D but typically 4D data, and that just doesn't exist here on the Atlantic.

The CHAIRMAN. Right.

So with the absence of a scheduled lease sale in the Atlantic you have folks that are saying well, there is no value in collecting any new seismic in the Atlantic OCS. What do you say to that?

Dr. KNAPP. I would challenge that assumption because, first of all, as I said in my testimony, the Federal Government is congressionally-mandated to do an evaluation.

The CHAIRMAN. Right.

Dr. KNAPP. Of the resource potential of the OCS, and I would submit that that's impossible to do with the current data. But beyond that I would say there are two additional issues.

One, if there were to be a lease sale sometime in the future, it would be entirely prudent to engage in the acquisition of the data and the analysis of it now such that we can fairly evaluate whether a sale is even appropriate, whether there is a resource base there. I think that's the way I understand the OCSLA legislation having been established. At first you evaluate the resource and then see if there's an economic incentive to go explore for it.

And the other issue that I would bring to the table is that in today's world it's become clear from a scientific standpoint that we learn a lot about one continental margin by looking at the opposing continental margin. And if we look to the continental margin of West Africa it's awash with new discoveries of oil and gas on a regular basis. And a part of the strategy, I think, is even in the absence of a lease sale there would be an interest to collect new seismic data on this margin to better understand what's going on in Africa.

The CHAIRMAN. Well, I appreciate what you have said and would concur that the imperative to understand what it is that we have so that we can make rational decisions, so that we can put lease sales up. It seems to me that you do it when you have the knowledge based on the inventory.

Let me ask you, Director Hopper, your analysis of the connection between industry interest in investing whether it is in Alaska or the Atlantic. If industry has a good sense as to what the resources may be within an area they are probably going to have greater interest or greater likelihood to participate in lease sales. It takes a lot of money up front to be competitive in these. Is what Mr. Knapp saying what you folks in BOEM concur with?

Ms. HOPPER. Yes, thank you, Chairman.

Let me go back to it. I just want to address one thing you raised because it's been bothering me since we last spoke.

If there was anything about our twitter feed, and I certainly will go back and take a careful look at it, that gave the impression that there was some predetermined outcome or that BOEM was not impartial, I personally apologize for that. That is not at all the way that we operate, so.

The CHAIRMAN. That was my impression. It might not be others, but—

Ms. HOPPER. Well, I just wanted us to be clear with each other. So thank you for raising it.

So in July 2014 BOEM put out a record of decision, our final programmatic environmental impact statement on G and G, so seismic testing on the Atlantic. And since that time we've been looking. We have permits pending.

We can have a long conversation about why they're still pending which I'm happy to do, but I do think that we would agree that more information is always better. And we have actually used some of those analogous coasts, specifically Africa, to update our assessment.

So we do, every five years, we do update the assessment of the oil and gas resource around the nation. Because we did have new data from those analogous studies, we updated, sort of off cycle, the Atlantic in 2014.

So, yes, would I agree with the professor that more information is better and provides good decision making? Absolutely.

The CHAIRMAN. Let me ask Dr. Knapp, if you can speak to the risks that may be posed to marine mammal populations when marine seismic surveys are conducted?

Dr. KNAPP. Well let me say at the outset I am not a marine biologist, so I could not claim to be an authority in that respect. But I think there's a—I've testified previously in other hearings that in 1991 the Federal Government, through the National Marine Fisheries Service, started monitoring what are called unusual mortality events in U.S. waters.

And in the succeeding 25 years that they've been monitoring, these are unusual mortality events of large populations of marine mammals. And if you look at the data that they've assembled, they're equally divided between the Pacific, the Atlantic and the Gulf of Mexico. Two of those areas there's been no commercial seismic activity, the Pacific and the Atlantic. And yet in the Gulf of Mexico, there's been continuous seismic activity over that period of time.

So I think there are any number of ways in which the data that we have suggests that there's no correlation, there's no demonstrable correlation between seismic activities either here in the

U.S. or worldwide that shows that there is a significant or long-lasting threat to either marine mammals or the marine environment.

The CHAIRMAN. Thank you.

We have gone over by about 15 minutes longer than I had planned for this hearing, but I want to ask one last question of you, Director Hopper.

We, in the state, have great interest, as you know, in offering area wide lease sales, and the lease sales in the Gulf have traditionally been on area wide acreage across a planning area.

Now I understand the proposed program is offering lease sales across Western and Central planning areas. Again, the State of Alaska, I think, has been persistent, consistent on its request to move to the area wide approach within the state. We keep getting pushed back and resistance on that. Why is that?

Ms. HOPPER. I think that the reason why we have done targeted leasing, identified targeted leasing in this current five-year plan, as well as the one that is pending, is because we think it is, sort of, let's all of us focus on the areas that are the most important to industry and do a good evaluation of those.

And so there are important environmental concerns to think about, subsistence needs to think about. And if industry can highlight for us the areas that they're most interested in we can understand those areas and target our thinking in those areas.

The CHAIRMAN. But that is unique to Alaska.

Ms. HOPPER. Alaska is a frontier area as—and the Gulf of Mexico is not.

The CHAIRMAN. Alaska, we were pretty busy in the 1980's.

Ms. HOPPER. True.

But there is just the one that is producing, the one area in the Beaufort that is producing the reservoir. But there is not a Federal facility yet. So we still consider it frontier.

The CHAIRMAN. Oh, I understand that. I understand that a great deal.

I just, I recognize that we use, perhaps, terms of convenience in describing Alaska as perhaps this wild, unknown frontier that we do not happen to know a lot about. Truth be told, the amount of exploration that was conducted in the 1980's was quite significant.

I think the beauty of it is that we have forgotten all about it because we did not have any problems. We did not have the issues and the concerns that many had feared and simply did not materialize.

Now there were events that led industry to look other parts around the world after that, but to suggest that somehow or other this is so special and so unique that we are going to treat it differently than we treat any other area within the OCS when it comes to the planning for the sales, I understand that there are differences.

Again I think we have been very clear and very persistent and consistent on this, and we continue to be pushed back by the Administration in a request for area wide lease sales, something that, I think, would make good sense for all that are involved.

I could probably spend most of my afternoon with you all but we are not able to do so. I will thank you for the time that you have given the Committee.

Know that while, again, many others were not participating this afternoon they have expressed great interest to me about what we have taken up this afternoon and great interest in the future of our OCS and its opportunities.

So I will thank you for your contributions this afternoon and look forward to future discussion.

And with that, the Committee stands adjourned.

[Whereupon, at 4:18 p.m. the hearing was adjourned.]

APPENDIX MATERIAL SUBMITTED

**U.S. Senate Committee on Energy and Natural Resources
May 19, 2016 Hearing: The Bureau of Ocean Energy Management's
2017-2022 OCS Oil and Gas Leasing Program
Questions for the Record Submitted to Ms. Abigail Ross Hopper**

Questions from Chairman Lisa Murkowski

Question 1: Retaining Alaska Sales – As you know, my top priority for the 2017 through 2022 plan is to maintain the three Alaska sales that BOEM has proposed. Senator Sullivan, Congressman Young, and Governor Walker join me in that effort, as do the vast majority of Alaskans.

- a. Part of the rationale for your removing the Atlantic sale was opposition from some coastal communities and citizens. Is that correct?

Response: In making the decision to remove the Mid- and South Atlantic Program Area from leasing consideration under the 2017-2022 Five Year Program, the Secretary of the Interior weighed all eight of the Outer Continental Shelf Lands Act Section 18 factors. The Mid- and South Atlantic Program Area was removed from the Proposed Program for a number of reasons, including strong local opposition, conflicts with other ocean uses, and current market dynamics.

- b. How would you describe the views of most Alaskans, and the State Government, in terms of supporting or opposing lease sales in our OCS?
- c. Are you aware of previous public opinion polls, including one from 2014, that show that more than 70 percent of Alaskans support development in our region of the OCS?
- d. Will you treat the lack of local opposition, and the overwhelming support of Alaskans in favor of development, as reason to retain the three Alaska OCS sales in the Final Program?

Response to b-d: The Bureau of Ocean Energy Management (BOEM) employs a robust approach to public outreach on the Five Year Program. In an effort to listen to and understand the views of Alaskans regarding the 2017-2022 Proposed Program, BOEM held ten public meetings in Alaska, including the communities of Kaktovik, Nuiqsut, Barrow, Point Lay, Wainwright, Kotzebue, Point Hope, and Ninilchik, as well as in Fairbanks and Anchorage. The BOEM Director personally attended five of these meetings. In addition to the public meetings, BOEM also accepted public comments on the Proposed Program from March 18 through June 16 with over 1.7 million comments received. BOEM is in the process of analyzing those comments.

Alaskans are stakeholders and their interests are important and relevant to the oil and gas leasing process. BOEM wants to know how local residents are affected and what considerations to take into account when enacting policy and managing our energy resources. This valuable feedback helps us make informed decisions, and is considered

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along with expressions of industry interest, environmental concerns, and the energy needs of the nation in determining which areas are most appropriate for leasing.

Question 2: NPC Recommendations – There is significant mis-information in the public realm about how “hard” or “risky” OCS exploration and development really is. What recommendations were you most taken with in the Secretary Moniz-directed National Petroleum Council review of Arctic development?

Response: BOEM recognizes that the National Petroleum Council (NPC) study is valuable and considers the resources and technological opportunities for potential offshore Arctic oil and gas activity. BOEM appreciates that the study includes consideration of advancements in the areas of technology, science and regulation. BOEM and the Bureau of Safety and Environmental Enforcement (BSEE) are working on a number of advancements in this area, including finalizing the Arctic rule, which addresses environmental challenges by setting Arctic-specific standards through regulations that reflect Arctic conditions, as recommended by the study.

Question 3: Industry Interest – Tell me about your analysis of the connection between industry interest in investing in Atlantic or Alaska seismic, and lease sales. How important is it for industry to have a good sense of the resources located in an area, before it is willing to put up large sums of money to for competitive leases in those areas?

Response: While BOEM benefits from additional geological & geophysical (G&G) surveys on the Outer Continental Shelf, this survey data is also important for companies prior to a lease sale as few of them would wish to devote funding to lease areas that do not contain the resources they desire. G&G surveys, however, are not essential for the inclusion or exclusion of an Outer Continental Shelf Program Area from a Five Year Program. G&G activities are permitted separately from leasing and BOEM considers applications for site-specific permits in accordance with Section 11 of the Outer Continental Shelf Lands Act (43 U.S.C. 1340) and 30 CFR 551. BOEM continues to analyze the pending permits for G&G activity in the Atlantic.

Question 4: Areawide Lease Sales – For decades, the State of Alaska has had tremendous success offering areawide lease sales. Your lease sales in the Gulf have traditionally been on areawide acreage across a planning area, and now I understand the proposed program is offering lease sales across Western and Central planning areas. Despite repeated requests to move to the areawide approach in Alaska, you have resisted. Why?

Response: In addition to significant resource potential, the Arctic Outer Continental Shelf has substantial environmental challenges and social and ecological considerations. BOEM's regionally tailored strategy is designed to continue to use incoming scientific information, including traditional knowledge, and stakeholder feedback to proactively

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determine, in advance of any potential sale, which specific areas offer the greatest resource potential while minimizing potential conflicts with environmental and subsistence considerations.

This approach is guided by internal best practices, as well as recommendations from the U.S. Geological Survey and the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling that BOEM consider alternatives to areawide leasing, particularly in frontier areas like the Arctic. Similar to BOEM's strategy in the Arctic, the early days of leasing in the Gulf of Mexico did not include area-wide leasing, and only transitioned to that model as the basin's exploration and development significantly increased.

Question from Ranking Member Maria Cantwell

Question: The Five-Year Program is critical to outlining the national strategy for offshore oil and gas. As such, it is important that this planning process is robust, transparent and provides ample opportunities for public engagement. Can you outline the public engagement that has gone into the Five-Year Program planning process and how it compares to past programs?

Response: Public input is a critical consideration in the Five Year Program development and decision making process. By design, there are multiple opportunities for the public to engage and provide comments during the program preparation process—including but not limited to those required under the Outer Continental Shelf Lands Act (OCSLA) program process and the National Environmental Policy Act (NEPA). During the preparation of the 2017- 2022 Program, BOEM has conducted, and is continuing to conduct, a robust public engagement effort. Specifically, public comments have been solicited at each of the following steps:

1. Issuance of an initial Request for Information and Comments that included a 45-day comment period beginning June 16, 2014, and extended to August 15, 2014, resulting in BOEM receiving approximately 500,000 comments.
2. Issuance of the Draft Proposed Program (DPP) followed by a 60-day comment period beginning January 27, 2015. In response to the DPP, over a million comments were received.
3. After the DPP was published, BOEM held 23 public scoping meetings in 2015 to solicit input on the Draft Programmatic Environmental Impact Statement (PEIS). In total, approximately 2,100 citizens participated in these public meetings, including 1,800 on the Atlantic Coast.
4. Issuance of the Proposed Program followed by a 60-day comment period. This

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comment period began on March 18, 2016 and concluded on June 16, 2016. The Draft PEIS was published simultaneously with the Proposed Program. BOEM held thirteen public meetings in the Alaska and Gulf of Mexico regions, as well as one in Washington, D.C., to solicit comments on the Draft EIS. This process included a 45-day comment period that concluded on May 2.

In addition to the required public comment periods and meetings outlined above, BOEM has made every effort to meet and discuss the Five Year Program development process with all interested parties. This includes meetings with more than 50 groups throughout the nation, as well as holding several informal educational meetings at the request of state governments.

Question from Senator Debbie Stabenow

Question 1: The Department of Interior's Final Second Supplemental Environmental Impact Statement for oil leases in the Chukchi Sea projects that there is a 75% chance of one or more oil spills of greater than 1,000 barrels if production moves forward in these waters.

It is my understanding that the extremely rough weather and drifting ice would make it very difficult to respond to an oil spill in these waters. Similar problems have been identified in the event of an oil spill from a pipeline in a particular segment of the Great Lakes. Can you talk about the risks of a major spill in the Chukchi and whether there are inherent difficulties in responding to contain a spill in these waters?

Response: The Arctic environment presents unique logistical, environmental, and cultural challenges. BOEM and BSEE have undertaken a rulemaking effort to ensure that an operator is appropriately prepared to conduct exploration operations in the Arctic environment and has the capabilities to respond to a spill in the event that one occurs; however, it is not apparent that industry is in a position to adequately respond to a large spill in this region. The logistical issues (staging response equipment, personnel, and transport and housing of personnel) alone make it extremely difficult to mount a response. For example, the nearest deep-water port that could support large response vessels is located in Dutch Harbor Alaska, which is approximately 900 nautical miles away from Kotzebue, Alaska. Another concern is that the area has abundant wildlife resources that are important for indigenous subsistence use, including tens of thousands of walrus, which are inherently difficult to protect during an oil spill. While it is critical that operators have the equipment and plans to respond in Arctic conditions, response technologies for dealing with oil in this environment (i.e., ice in particular) are limited and not proven to be effective.

Question 2: I understand that potential conflicts identified by the Department of Defense were a factor in the Bureau's decision to remove the lease sales originally proposed in the

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Mid- and South Atlantic. Can you describe the specific concerns raised by the Department Defense to drilling in these waters?

Response: The Department of Defense's (DOD) assessment identifies much of the area offshore Virginia, as well as portions of the Program Area offshore North Carolina, as areas that should not be made available for oil and gas development, as such development would be incompatible with DOD's activities. Additionally, DOD recommends that significant acreage of the Atlantic Program Area not be made available for placement of oil and gas structures due to conflicts with DOD activities. These areas of DOD concern significantly overlap the known geological plays and available resources. The DOD's concerns were among the factors that influenced the Proposed Program decision on the proposed Atlantic program area. The Department of the Interior respects DOD's mission and will continue to work closely with the DOD to understand and identify potential measures to address any conflicts in these areas. The DOD would be able to provide any additional information related to its concerns in the Mid- and South Atlantic Program Area.

Questions from Senator Jeff Flake

Question 1: BOEM describes its role as promoting "energy independence, environmental protection, and economic development." While BOEM cites low industry interest for cancelling some lease sales, industry often cites burdensome overregulation for disincentivizing investment and prohibiting the development of a diverse and sustainable energy portfolio. Upfront production costs for energy companies to develop an area for drilling frequently amounts to billions of dollars, with no return on investment for multiple years. Regulations such as extremely tight regulatory windows for drilling and requirements to bore dormant relief wells have contributed to producers foregoing the drilling of new wells.

- How does BOEM fulfill the roles of promoting energy independence and economic development in light of these and other regulatory restrictions on energy development?

Response: BOEM, in development of its Five-Year Program, provides an important component of the President's comprehensive energy strategy to allow for safe and responsible domestic oil and natural gas production as a means to support economic growth and job creation, and enhance energy security. An important aspect of the Five-Year Program process is balancing development of offshore oil and gas resources with the protection of the marine, coastal, and human environments. These same factors are carried through BOEM's regulatory decisions. BOEM carefully considers (among other factors) the nation's energy needs and markets, potential benefits from oil and gas development, and the risk characteristics of development and the probability of adverse environmental and ecosystem impacts. BOEM promotes energy independence,

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environmental protection, and economic development through responsible science-based management.

Question 2: According to testimony, time from discovery to production may be 5-10 years. Furthermore, production from lease sales may last 30 years past first production, meaning the lease sales considered in this 5-year plan may project well past the year 2050. However, BOEM has cited current market conditions as a reason to cancel lease sales. These programs are made to plan for the future, not the present, and the picture of energy security and development could be very different when these wells begin producing and throughout their lives. In this same testimony, it is also notable that current low interest rates present an incentive for investment in new leases, and these new leases are more valuable now than with future inflation. Maintaining flexibility in our energy portfolio through consideration of all potential leasing options would support an all-of-the-above internationally competitive energy policy.

- Please describe how BOEM took into account the long lag time between discovery and production when drafting the proposed plan and came to the conclusion that current market conditions outweighed potential market conditions 10-40 years in the future.

Response: BOEM considered the time between leasing and eventual production in its analysis of the Nation's energy needs and its consideration of energy markets. The OCS provides a base load production which is less responsive to price changes than other domestic sources of production, but requires long-term planning to fully develop. BOEM's analyses and models use internal projections of timing, production, and activity to compare with the Energy Information Administration's long term forecasts of production and consumption. These analyses showed that, even in the long-term, domestic oil and gas production will remain strong with the current lease sales planned in the 2017-2022 Proposed Program decision. Further, the analysis of national energy markets is just one of the statutory factors that the Secretary considers in reaching a decision.

- Please explain the reasoning behind further restrictions of OCS oil and gas leasing in an economic climate that favors investment in this energy arena.

Response: BOEM's Energy Needs and Energy Markets analysis in the Proposed Program decision document describes current energy market trends. Given these current trends, BOEM considered the importance of new OCS oil production in light of projected onshore production levels and relatively stable oil prices. While current low interest rates could encourage prompt leasing and investment, oil prices are also a fundamental consideration in energy investment decisions. Further, in considering other factors, such as long-run national security interests, oil and gas resources from areas not included in

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the 2017-2022 Proposed Program could become more valuable at some point in the future.

Questions from Senator Al Franken

Question 1: Several companies, including Shell and ConocoPhillips, have recently walked away from their leases in the Chukchi and Beaufort Seas. In fact, of the more than four million acres leased between 2003 and 2008, fewer than one million acres are still held by oil companies, and there are no current proposals for exploration the remaining leases. Furthermore, last October, the Department of the Interior canceled new lease sales that were scheduled for 2016 and 2017 in the Chukchi and Beaufort seas—largely due to a lack of interest from oil companies. Given this lack of industry interest and the unique environment of the Arctic, do you believe it still makes sense to schedule more lease sales in the region?

Response: The Proposed Program is the second of three steps required to create an oil and gas leasing program, and it does not represent a final decision about whether Arctic leasing will be included in the Final Program. Recognizing the significant oil and gas potential in the Arctic OCS region and the views of the State of Alaska, BOEM decided to include the three potential Alaska sales in the Proposed Program.

Question 2: How will our partnerships with Canada and the Nordic nations to preserve the Arctic influence BOEM's 5-year Outer Continental Shelf oil and gas leasing program?

Response: The work we have done with our offshore oil and gas counterparts in Canada and the Nordic countries reflects the importance of striking a balance between the need to protect the environment and indigenous peoples' ways of life; the need to support energy and economic security; the need to ensure strong Arctic communities with sustainable economies; and the importance of respecting and promoting indigenous peoples' rights in all decision-making.

The U.S., Canada, and the Nordic nations have influenced each other in the management of offshore oil and gas activities over decades of interaction and continue to do so moving forward. We have worked with these countries through the Arctic Council; in Arctic scientific research initiatives (including BOEM's Environmental Studies Program and BSEE's Technology Assessment Program); through BSEE's offshore operational Memoranda of Understanding with regulators in Norway and Canada; and through other multilateral forums specific to offshore oil and gas, including the International Regulators Forum, the International Upstream Forum, and the newly formed Arctic Offshore Regulators Forum. We have also worked with Canada in five US-Canada Northern Oil and Gas Research Forums. All of these shared experiences

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and the knowledge gained from them assist BOEM as it develops the Five Year OCS Oil and Gas Leasing Program.

Question 3: I'm very concerned about a situation where a company does not have the means to clean up an oil spill in the Arctic. Does BOEM require companies to show they have the capability to clean up a spill when handing out a new lease?

Response: Yes, BOEM requires an operator to establish financial resources necessary to pay for cleanup and damages that could be caused by oil discharges; however, financial capacity alone does not ensure a safe and effective response. BSEE reviews oil spill response capabilities prior to approving activity on a lease.

Question 4: How many active federal leases are held by the oil industry on the OCS today and what percentage of those are currently producing oil and gas?

Response: As of June 1, 2016, there were 4,119 active leases on the OCS. Of those active leases, 910 or approximately 22 percent are producing oil or gas.

Question 5: Now that BOEM has dropped the Atlantic lease sales from the Proposed Program and it is clear that leasing is not going forward in the region for years to come, why is the agency still moving forward with permitting seismic testing to search for subsea oil and gas deposits in the Atlantic?

Response: G&G activities are permitted separately from the Proposed Program and BOEM considers applications for site-specific permits in accordance with Section 11 of the Outer Continental Shelf Lands Act (43 U.S.C. 1340) and 30 CFR 551. BOEM continues to analyze the pending permits for G&G activity in the Atlantic.

Question from Senator Steve Daines

Question: According to the Energy Information Administration, offshore oil production is estimated to increase to record high levels in 2017, even as oil prices remain low. Contributing to the forecasted production growth are 14 projects: 8 that started in 2015, 4 starting in 2016, and 2 anticipated to start in 2017. These projects are mostly connected to leases included in plans from nearly a decade ago. With this 5-year plan, I wonder where we will be in ten years as global energy demand increases.

Director Hopper, as we've seen it takes several years for projects to come online, has BOEM considered the long-term benefits and lost-opportunity by not considering sales in Atlantic, Pacific, and now potentially the Arctic OCS?

Response: BOEM's analysis considers the long-term nature of OCS projects and how future uncertainty affects these long term decisions. BOEM models and analyzes the

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benefits and costs of OCS production using assumptions about timing, activity, and production over more than 50 years. Leasing decisions in this Five-Year Program dictate leasing over the next five years, but revised analysis in future Five-Year Programs also has the ability to shape future OCS projects in the years to come.

Questions from Senator Bill Cassidy

Question 1: BOEM proposed updated air quality regulations to account for emissions from offshore oil and gas activity to ensure those activities do not significantly harm onshore air quality. BOEM's NEPA analyses concluded that offshore emission sources do not significantly contribute to onshore air quality. State Implementation Plans for affected states have come to the same, if not similar, conclusions.

What new data has BOEM received or what studies have been undertaken to show that offshore oil and gas activities adversely impact onshore air quality?

Response: There is no new data showing significant adverse impacts. BOEM is conducting two scientific air quality studies, one for the Arctic and the other for the Gulf of Mexico.

BOEM began the Arctic Air Quality Modeling Assessment Study in September 2013, and expects to finish the study in 2018. An inventory of projected emissions and compilation of a meteorological dataset are completed. Computer-simulated modeling will soon begin. Following this modeling effort, the study will evaluate emission exemption thresholds and recommend any warranted revisions to the equations for BOEM's consideration.

BOEM began its Air Quality Modeling in the Gulf of Mexico Region Study in August 2014, and expects to finish the study in 2017. Specific objectives of the study include conducting air quality modeling to assess cumulative impacts analysis of OCS oil and gas activities to coastal states, and evaluating emission exemption thresholds and recommending any warranted revisions for BOEM to consider. A meteorological dataset has been compiled and an emissions inventory dataset has been completed. Photochemical modeling is underway to assess the cumulative impacts. After photochemical modeling is completed, the study will focus on the emission exemption threshold analysis.

Under the Outer Continental Shelf Lands Act, BOEM is required to promulgate regulations for compliance with the Environmental Protection Agency National Ambient Air Quality Standards (NAAQS). In addition to updating regulations to reflect current NAAQS, BOEM also conducts analysis to update its assessment of impacts to coastal states. BOEM is currently conducting the Air Quality Modeling in the Gulf of Mexico Region Study and the Air Quality Modeling in the Alaska Region Study. One of the

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multiple tasks of these studies is to conduct photochemical modeling to perform a cumulative impact analysis of all existing sources (if any) plus any future source based on the projected activity from the next Five-Year Program. This analysis will be used for the prelease NEPA documentations for both regional programs. Another task of the studies is to conduct dispersion modeling to recalculate emissions exemption formulas which will be used for analysis when the operator submits its plan. Lastly, in both regions, some of the dispersion modeling that has been conducted by the operators suggests that the impacts on the onshore concentrations of nitrogen dioxide exceed significant impact levels and so may cause or contribute to a violation of the current 1-hour nitrogen dioxide NAAQS.

Question 2: BOEM has committed \$4 million to undertake that study which will inform the regulatory process and whether it is warranted.

- a. Since BOEM has already moved forward with the rulemaking process before the air studies are complete, how will the outcomes of that study impact this rule if the studies come to the same conclusion as others?

Response: The ongoing air quality studies will be useful for analyzing future plans. BOEM periodically undertakes air quality studies in the Gulf to inventory emission sources and evaluate potential impacts. The ongoing Air Quality Modeling in the Gulf of Mexico Region (GOMR) Study has many tasks including: photochemical modeling analysis for a post lease cumulative impact assessment of all existing and future year sources; a dispersion modeling analysis to recalculate the emissions exemption thresholds (EETs) for post lease analysis; a comprehensive 5 year meteorological database that will be used in the GOMR for future modeling including for operators and for BOEM's future assessments; an Environmental Protection Agency equivalency demonstration to replace the outdated Offshore Coastal Dispersion model with the AERMOD-COARE model for operators future use for dispersion modeling; a visibility impact analysis of the five Class I areas in the GOMR; to compute a background modeled concentration on the state seaward boundary since no monitors exist for future operator modeling assessments; and to assess black carbon emissions from oil and gas activities. Lastly, a source apportionment tool will be used in the photochemical cumulative impact analysis that will tag specified sources or groups. This will afford BOEM the opportunity to discern which source groups have the largest impacts, and potentially need to be examined for control strategies. For instance if the modeling suggests that oil and gas sources impact Houston ozone, the source apportionment tool will state which is the main impacting source, such as support vessels or drilling rigs.

- b. When does the Agency anticipate those studies will be completed? Please be specific.

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Response: The Air Quality Modeling in the GOMR Study is expected to result in a final report issued in August 2017, although BOEM will receive individual tasks prior to that date. The Air Quality Modeling in the Beaufort Sea and Chukchi Sea Study report is expected in September 2018.

Question 3: I understand these rules have not been updated in 36 years so there may be a necessity to look at an update based upon new exploration and production techniques, but if BOEM does not have new data currently available and any new data that the Agency receives will not be available until 2017, why is BOEM proceeding with this rule?

Response: Under the OCS Lands Act (OCSLA), BOEM is required to promulgate regulations for compliance with the National Ambient Air Quality Standards (NAAQS) established under the Clean Air Act (CAA) by the U.S. Environmental Protection Agency (EPA). The OCSLA requires BOEM to regulate air pollutant emissions from activities authorized under OCSLA to the extent they significantly affect the air quality of any State. The proposed rule would update BOEM's current air quality regulations, which were promulgated in 1980. BOEM regulates air pollutant emissions from oil and gas activity as a part of its review of oil and gas exploration and development plans, and right-of-use and right-of-way applications for areas on the OCS in the Western and Central Gulf of Mexico and the area north of the North Slope Borough of the State of Alaska; Congress added the latter area to BOEM's jurisdiction in 2012. EPA regulates emissions on the remaining OCS under its own permitting process under the CAA. While BOEM continues to incorporate the latest science into its analysis, these changes are needed irrespective of new scientific studies.

The proposed regulations are designed to allow advances in science and assessment of air quality impacts to be flexibly and efficiently incorporated into BOEM's air quality rules, including results of the modeling studies currently underway. The modeling studies are intended to inform air quality requirements within the framework of the proposed regulations, not the framework itself.

Question 4: BOEM recently extended the comment period for 14 days after an initial comment period of 60 days. Would BOEM consider extending the comment period further under an Advanced Notice of Proposed Rulemaking to allow all stakeholders adequate opportunity to help inform the agencies rulemaking?

Response: No, BOEM has provided adequate time for review of the proposed rule.

Questions from Senator Elizabeth Warren

Question 1: Earlier this year, your agency made the decision to not include the Atlantic Ocean in the Proposed Program for OCS oil and gas leasing for 2017-2022. As Secretary Jewell said, "When you factor in conflicts with national defense, economic activities such

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as fishing and tourism, and opposition from many local communities, it simply doesn't make sense to move forward with any lease sales in the coming five years." I applaud your leadership in making this decision.

At the same time, your agency is still reviewing permits to allow the use of seismic airgun blasting to locate oil and gas deposits in the Atlantic. Given that the reasons cited by Secretary Jewell for rejecting oil and gas lease sales are unlikely to change – particularly the widespread local opposition to leasing and the harm drilling would cause to fishing and tourism industries along the coast – why is your agency continuing to consider permits for seismic activity intended to facilitate oil and gas development?

Response: G&G activities are permitted separately from the Proposed Program and BOEM considers applications for site-specific permits in accordance with Section 11 of the Outer Continental Shelf Lands Act (43 U.S.C. 1340) and 30 CFR 551. BOEM is still considering the G&G applications filed for the Atlantic as required per its regulations.

Question 2: Advocates of seismic airgun blasting often point to a quote from William Brown, BOEM's Chief Environmental Officer, who wrote, "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 marine animal populations or coastal communities." These advocates often imply that BOEM believes there is no documented scientific evidence that these activities affect marine animals at all. For example:

- Peter Seidel of the International Association of Geophysical Contractors recently cited this statement in his testimony in front of the House Subcommittee on Energy and Mineral Resources in defense of his claim that "after a decade of intense scientific and environmental advocacy group scrutiny, there is still **no** scientific support for statements that seismic sound kills or injures animals, causes them to beach themselves or disrupts their behavior to the extent that it affects the health and well-being of the individuals or the populations of which those individuals are a part."
- At the same hearing, one Congressman pointed to Dr. Brown's claim to argue that "There is not a single verifiable instance where seismic testing has harmed or killed a marine mammal."
- In a blog post, the U.S. Chamber of Commerce pointed to Dr. Brown's statement, arguing that "The fact of the matter is that there's no evidence that seismic surveying will harm marine life. Flipper will be fine."

Is there scientific evidence that noise from air guns used in geological and geophysical (G&G) seismic activities adversely affects marine animals?

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Response: While BOEM acknowledges that testing for marine mammal mortality is difficult in the marine environment, there has been no proven mortality as a result of exposure to seismic noise. BOEM continues to partner with many federal and state stakeholders to research acoustic and ambient noise present in the Outer Continental Shelf in order to further our understanding of the marine mammals present as well as provide a baseline of ambient underwater noise.

Question 3: Last month, 28 marine biologists wrote to President Obama to request the Administration to halt the permitting of oil and gas surveys off the east coast. The letter highlights recent studies indicating that the population of the endangered North Atlantic right whale is not growing and may be in decline, that fishing gear entanglements and other human activities are already placing the species at risk, and that oil and gas surveys have been tied to serious harms in baleen whales. The scientists conclude that the 2014 Programmatic Environmental Impact Statement released on Atlantic geological and geophysical activities is based on outdated scientific information. How is BOEM taking this letter and the studies it references into account as it decides whether to permit seismic activities?

Response: BOEM has committed to preparing a site specific environmental assessment under the National Environmental Policy Act for each permit under consideration for the Atlantic. This will be tiered from the 2014 Programmatic EIS and is meant to evaluate any new information since publication of that EIS. This tiering process helps ensure that BOEM uses the best available information at the closest point to the decision, and this allows for us to adapt our analysis if needed. At present these site specific analyses are underway and considering all new information, including that identified in the above referenced letter. In addition, the National Marine Fisheries Service will conduct a separate permit specific analysis under the Marine Mammal Protection Act.

OFFICE OF THE PRESIDENT

POST OFFICE BOX 775
CAMBRIDGE, MD 21613-0775
(410) 221-2000
FAX (410) 228-3843
boesch@umces.edu
<http://www.umces.edu>



University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

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Response to Question from Senator Franken for the Record**

Donald F. Boesch, Ph.D.

Questions: In April, we passed the six-year mark from one of the worst environmental catastrophes in our nation's history, the Deepwater Horizon oil spill. Sadly, accidents continue to occur on a regular basis. In fact, in May nearly 90,000 gallons of oil leaked into the Gulf of Mexico less than 100 miles off the coast of Louisiana. Planes flying above could see a 13-mile long, 2-mile wide oil slick on the sea surface. Yet, despite the seemingly inevitable oil spills that come with offshore drilling, we continue to discuss drilling in the Arctic, which contains some of most pristine landscapes in the world. It would be devastating to see an oil spill impact this true gem. Can you describe the unique environmental and ecological challenges we would face if an oil spill occurred in the Arctic? And more specifically, how exactly do you go about cleaning oil in icy water—or yet worse—oil that gets trapped under the ice?

Answer: I mentioned in my written testimony the recent release of approximately 90,000 gallons of oil from a seabed flow line at a Shell production facility off of Timbalier Island, Louisiana, and how this is an indication that significant risks still exist six years after the *Deepwater Horizon* blowout despite a number of improvements in the regulatory regime. As I pointed out, there are still improvements needed both in the safety culture of the oil and gas extraction industry and in the operations of federal regulatory agencies. Just after the Senate hearing, the National Academies of Sciences, Engineering and Medicine release a report entitled *Strengthening the Safety Culture of the Offshore Oil and Gas Industry* that underscored this point and presented a detailed analysis of the remaining deficiencies and recommendations for improvement.¹

The challenges of preventing, containing and controlling oil spills and blowouts in the Alaskan Arctic are in many ways similar to those in the Gulf of Mexico, but in other important ways different. The infrastructure to support offshore industry operations and spill containment and control is much more limited and distant. The U.S. Coast Guard, which has responsibility for overseeing spill control, has very few assets in northern Alaska and its shore-based facilities are

¹ Transportation Research Board. 2016. *Strengthening the Safety Culture of the Offshore Oil and Gas Industry*. National Academy Press, Washington, D.C.

very far removed. Floating ice in the environment create different ecological conditions and challenges for vessels and drilling platforms. There are large populations of marine mammals that would be particularly at risk from floating oil, as well as sound and other operational disruptions.

Should a substantial spill occur the ice and cold temperatures would reduce the rates of physical, chemical and biological processes through which crude oil is dispersed, weathered and degraded. The success of oil spill control by booms and recovery by skimmers is quite limited in open ocean waters even in the Gulf of Mexico. Floating ice exacerbates the problem, interfering with access to the floating oil and the effectiveness of equipment. This is particularly the case if oil is trapped below the ice, as there is no proven technology to recover such oil.

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Question from Senator Debbie Stabenow

Question: The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling recommended a series of action that Congress should consider taking after the 2010 oil spill, including rescinding or raising the Oil Pollution Act's \$75 million limit on a responsible party's liability for a spill.

I recognize that the decision to remove the lease sales originally proposed in the Mid- and South Atlantic has generated criticism, but it would seem prudent to me that we address the liability limit for spills before opening up new waters to drilling. Could you comment on whether the Congress should lift or eliminate the liability cap for spills?

Response from Dr. James H. Knapp

Response: I thank Senator Stabenow for the question, and the opportunity to register this response on the record. As a Professor of geology and geophysics, and a former employee in the petroleum industry, I have familiarity with a number of aspects of offshore oil and gas exploration and development. I cannot claim, however, to be an authority on the liability issues referenced in the Oil Pollution Act of 1990.

Having said that, if the concern for Congress is the amount of oil in the sea, it may be useful to review the series of reports prepared by the National Academy of Sciences entitled "Oil In the Sea", the most recent of which was published in 2002. According to these authoritative studies, by far, the largest input source annually of petroleum to the worldwide (47%) and North American (63%) marine environments is natural seepage. In contrast, an estimated 2% (~36,000 boe) results annually from offshore oil and gas development. More than 1.1 Bboe, or more than a fourth of the estimated volume of the Deepwater Horizon spill, are introduced to North American waters on an annual basis through natural processes. One might reasonably conclude from these data that the most effective means to reduce petroleum input to the marine environment would be to produce these reservoirs in order to reduce natural seepage.

While Congress may well wish to debate the merits of increasing or eliminating the oil spill liability cap, I do not believe such deliberations are a pre-requisite for fairly assessing the resource potential of the Atlantic OCS with new seismic reflection surveys. Should these new surveys indicate limited resource potential, the liability cap is likely moot. Alternatively, should there be a premise to pursue exploration, the lead time for offshore development is measured in many years, if not decades.

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I recognize that the decision to remove the lease sales originally proposed in the Mid- and South Atlantic has generated criticism, but it would seem prudent to me that we address the liability limit for spills before opening up new waters to drilling. Could you comment on whether the Congress should lift or eliminate the liability cap for spills?

Answer: Congress should, absolutely, lift or remove the liability cap for oil spills. The \$75 million cap on liability for oil spills is an outdated figure from the Oil Pollution Act of 1990. OPA 90 was based on a spill from a tanker, which contained a finite amount of crude oil. The liability cap from that landmark bill is inadequate for a spill from an off shore rig that can spew a staggering amount of crude oil. The BP Deepwater Horizon spill leaked for 90 days, and it was only stopped once a cap had been placed on the well. It stands to reason that if a spill results in the release of more oil than can be held in a tanker, then more money should be spent cleaning up the oil spill.

Questions from Senator Al Franken

Question 1: Several companies, including Shell and ConocoPhillips, have recently walked away from their leases in the Chukchi and Beaufort Seas. In fact, of the more than four million acres leased between 2003 and 2008, fewer than one million acres are still held by oil companies, and there are no current proposals for exploration the remaining leases. Furthermore, last October, the Department of the Interior canceled new lease sales that were scheduled for 2016 and 2017 in the Chukchi and Beaufort seas—largely due to a lack of interest from oil companies. Given this lack of industry interest and the unique environment of the Arctic, do you believe it still makes sense to schedule more lease sales in the region?

Answer: No, we think BOEM should cancel the three proposed lease sales in Alaska, and it is not just the environmental community or Alaska Natives who share that opinion. As you note in your question, the oil industry seems to be losing interest in the Arctic Ocean.

Just this past year, following Shell's abandonment of its drilling attempt, BOEM canceled two lease sales for the Arctic proposed as part of the 2012-2017 five-year plan citing a lack of industry interest. In the last month Shell and other oil companies have relinquished almost every one of the existing leases in the Chukchi and Beaufort seas.

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The Sierra Club has always opposed leasing and drilling in the Arctic Ocean. As you, Senator Franken and others pointed out in a hearing on the challenges facing Alaska's North Slope, the only reason companies can even dream about operations in the Arctic Ocean is the fact that climate change is melting sea ice that previously made that area inhospitable to drilling. Conversely, science has shown that the Arctic is already disproportionately affected by climate change, warming at twice the global rate. We should not make climate change worse by drilling for more oil.

Additionally, this area is too sensitive and too ecologically important. The waters of the Chukchi and Beaufort Seas are home to the entire U.S. population of polar bears, millions of migratory birds, and endangered Bowhead whales. Oil and gas operations threaten the sustainability of this natural area and the livelihood and integrity of Alaskan Native communities. We simply should not be holding any new lease sales in our Arctic waters.

Question 2: In March, President Obama and Prime Minister Trudeau announced a new partnership to preserve the Arctic and support the Indigenous peoples that inhabit the region. Both leaders agreed to proceed with oil and gas development "only when the highest safety and environmental standards are met, including national and global climate and environmental goals." Plus, on May 13, the President along with the leaders of the Nordic nations announced enhanced efforts to tackle climate change and protect the Arctic environment. Do you think it's possible to drill in the Arctic and maintain the highest safety and environmental standards at the same time?

Answer: Simply put, there is no way to drill in the Arctic and maintain a standard that could ensure the protection of its environment. The Sierra Club supports enacting the strongest safety standards for offshore drilling operations and supports the recent agreements with the Canadian government, but the oil and gas industry is simply incompatible with an ecosystem as remote, pristine, and fragile as the Arctic Ocean.

As Shell Oil showed during its 2012 and 2015 exploratory drilling operations in the Chukchi Sea, operating in the remote Arctic is a reckless and risky proposition – and ultimately a poor business decision. In September 2012, Shell's oil spill containment dome was damaged during a failed sea trial off the comparatively mild coast of Washington – not in the extreme, icy conditions of the Arctic. After five days of struggle to get the containment dome certified with BSEE, it "breached like a whale" then sunk more than 120 feet. Approximately 12 hours later, the crew of the Challenger managed to get the dome back to the surface and a BSEE official noted that, "basically the top half is crushed like a beer can." To end its 2012 season, Shell brought national spotlight on the dangers of trying to drill in America's Arctic Ocean when its drilling rig, the Kulluk, ran aground off the coast of Kodiak Island, Alaska.

Then again in 2015, Shell nearly lost control of another vessel during certification exercises and on its way to the Arctic, Shell's icebreaker, *MSV Femica*, which contained

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the capping stack for well blowouts or other emergencies, breached its hull and had to return for repairs.

Shell repeated failed attempts to drill in the Arctic demonstrate the challenges of drilling there. There is little to no onshore infrastructure to stage clean-up equipment and support craft, not enough staff available to work on cleanup crews, and the nearest Coast Guard station is thousands of miles away. The technology, machines, and people needed to clean up an oil spill or safely maintain oil drilling operations are simply not physically located in the Arctic.

Question from Senator Bill Cassidy

Question: Mr. Manuel, in your testimony you make some of the following statements:

1. *"History has shown that offshore drilling leaves behind a dirty and dangerous legacy.*
2. *...new oil and gas leasing and drilling leads to more pollution.*
3. *New offshore leasing and drilling is also at odds with fighting climate disruption.*
4. *...National Climate Assessment is crystal clear: the planet is warming, and over the last half century, this change has been driven predominantly by the burning of fossil fuels like oil and gas.*
5. *Offshore drilling is too dirty to allow off of our coasts.*
6. *Finally, oil and gas drilling accelerates global climate change, causing our planet's temperatures to rise more quickly."*

Last December, I noted in an editorial that while the President and his administration were attempting to lower greenhouse gas emissions from domestic oil and gas production on federal lands, retain the crude oil export ban and impose regulations designed to restrict oil and gas exploration, they were also negotiating a deal with Iran that allows that country to increase its oil production by 2 million barrels per day by 2021 and gives the Iranians access to new global markets.

Despite signing the Paris Climate Agreement, Iran does not share the same commitment to reducing emissions from oil production. The International Council on Clean Transportation and the Carnegie Endowment for International Peace determined that Iran emits almost three times the GHG per barrel during production of crude oil than that of U.S. producers in the Gulf of Mexico. In other words, if Iran increases oil production by 2 million barrels per day due to a vacuum the U.S. leaves in the market, they will emit thousands metric tons more of CO2 equivalents per day.

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Unlike Iran, the U.S. has a long-standing commitment to conservation. Louisiana is bound by its state constitution to use 100 percent of the royalties from offshore oil and gas towards coastal restoration efforts.

Specifically, what is the environmental and economic benefit of restricting output in the Gulf when production in Iran and other higher carbon emitting crude production areas would simply fill the void left by the United States?

Answer: The Sierra Club supports keeping all new fossil fuels in the ground, and that includes those found in Iran. Prolonging the world economy's reliance on fossil fuels only strengthens countries run by leaders hostile to the United States, like Iran.

Drilling anywhere will further sea level rise and the destructive affects climate change has had on Louisiana's coast. Restoration in Louisiana is critical for the economy, ecosystem, way of life, and to people like the Homa who have become climate refugees. The Sierra Club fully supports restoring Louisiana's Gulf Coast--but that restoration cannot continue to be linked to new off shore drilling that will make climate change worse.

The funds generated by the Gulf of Mexico Energy Security Act are far outpaced by the costs of restoration. As you know, the maximum annual amount that Louisiana can receive from revenue sharing is \$225 million, and the Bureau of Ocean Energy Management currently estimates that it can expect only \$145 million. However, the Coastal Master Plan requires an estimated \$1.3 billion of annual state investment for the next 20 years and \$50 billion total over the next 50 years, making any expectation of using revenue from GOMESA to fund restoration irresponsible and fiscally impossible. Without the full implementation of the Coastal Master Plan, Louisiana will face even greater expenses in the future, such as increased flooding which could cost an estimated additional \$23.4 billion to properties per year, and community relocation costs, which are estimated at \$40 billion.

Considering that by some estimates the oil and gas industry is responsible for 36 to 59 percent of the damage to Louisiana's coastline, which taxpayers are now paying billions to fix, the assertion that this industry has a future in this area is severely flawed.¹

Question from Senator Elizabeth Warren

Question: Do you believe it's a good idea to allow seismic airgun blasting in the Atlantic Ocean?

¹ Rich, N. (2014). The Most Ambitious Environmental Lawsuit Ever. Retrieved June 03, 2016, from http://www.nytimes.com/interactive/2014/10/02/magazine/mag-oil-lawsuit.html?_r=1

**U.S. Senate Committee on Energy and Natural Resources
May 19, 2016 Hearing: The Bureau of Ocean Energy Management's
2017-2022 OCS Oil and Gas Leasing Program
Questions for the Record Submitted to Mr. Athan Manuel**

No, granting these exploration permits would allow seismic airgun blasting in the Atlantic, blasting that that would cause large-scale harm to marine life in an area spanning from Delaware to central Florida. A significant body of scientific research has established that seismic airgun blasts can cause harm to fish, invertebrates, and marine mammals. Just last month, 28 marine biologists who are experts on the critically endangered North Atlantic Right Whale sent a letter warning that Atlantic seismic surveys could jeopardize the survival of that species.

Considering that the Atlantic is no longer available for leasing under the current five-year plan, allowing seismic testing does not make sense. Nor does it seem practical, as it is unlikely that any oil company would purchase the data collected from seismic testing in the Atlantic. Finally, new technology that is almost ready for commercial use may reduce the impacts of seismic exploration in the future. At a minimum, BOEM should deny pending permit applications for seismic testing until this new technology comes on line.

**U.S. Senate Committee on Energy and Natural Resources
May 19, 2016 Hearing: The Bureau of Ocean Energy Management's
2017-2022 OCS Oil and Gas Leasing Program
Questions for the Record Submitted to Dr. Joseph Mason**

Question from Senator Debbie Stabenow

Question: The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling recommended a series of action that Congress should consider taking after the 2010 oil spill, including rescinding or raising the Oil Pollution Act's \$75 million limit on a responsible party's liability for a spill.

I recognize that the decision to remove the lease sales originally proposed in the Mid- and South Atlantic has generated criticism, but it would seem prudent to me that we address the liability limit for spills before opening up new waters to drilling. Could you comment on whether the Congress should lift or eliminate the liability cap for spills?

Response from Dr. Mason

I have to say that while I do not see an obstacle to raising the liability limit to keep up with inflation, generally, the Deepwater Horizon incident provides little support for such an increase. It is important to point out that the limitations on liability do not apply if the incident was caused by gross negligence, willful misconduct, or violation of an applicable Federal regulation. BP and Transocean were found to be grossly negligent. While I understand generally the complexities of the legal appeals and challenges, it seems that such gross negligence has already accounted for this incident.

Additionally, the Coast Guard's evaluation of liability limits in their 2014 Report to Congress found little support for raising the liability limit on offshore facilities. The Coast guard noted that, "The incident involving the Deepwater Horizon and Macondo Well is the only incident known to have resulted in costs and/or damages exceeding the statutory liability limit for an offshore facility.... There have been no other offshore facility incidents that approach the 'all removal costs plus \$75 million' limit under existing law." (*Oil Pollution Act Liability Limits in 2014: Report to Congress*, U.S. Coast Guard, October 2, 2014 at p. 3.) The Coast Guard also pointed out that "...the highest cost incident [short of Deepwater Horizon], at approximately \$18.2 million (in 2014 dollars), does not meet the statutory limit of liability of all removal costs (plus \$75 million for damages)." (*Oil Pollution Act Liability Limits in 2014: Report to Congress*, U.S. Coast Guard, October 2, 2014 at p. 4.)

Thus, while it seems sensible to keep up with inflation, generally, it seems the prior limit is a non-binding constraint.

**U.S. Senate Committee on Energy and Natural Resources
May 19, 2016 Hearing: The Bureau of Ocean Energy Management's
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Questions for the Record Submitted to Dr. Joseph Mason**

Question from Senator Steve Daines

Question: According to the Energy Information Administration, offshore oil production is estimated to increase to record high levels in 2017, even as oil prices remain low. Contributing to the forecasted production growth are 14 projects: 8 that started in 2015, 4 starting in 2016, and 2 anticipated to start in 2017. These projects are mostly connected to leases included in plans from nearly a decade ago. With this 5-year plan, I wonder where we will be in ten years as global energy demand increases.

How important is it to states like Louisiana for the Department of Interior to keep in mind the long-term benefits and opportunities (or lack of opportunity when the Department cancels lease sales) of formulating leasing decisions in a 5-year plan?

Response from Dr. Mason

As I pointed out in my recent analysis, while prices are lower today than previously, they are expected to be higher than previously in the future. In other words, the future price curve has “rotated,” rather than “shifted downward.” As noted in my testimony, that means that demand for leases remains high.

Since leasing today determines production five to ten years in the future, we can reasonably project production to fall as demand responds to today’s high prices, increasing oil price volatility. That price volatility will also be associated with employment, wage, and tax revenue volatility as well. Thus, it is crucially important to keep in mind fluctuations to prices as well as local economic conditions when crafting five-year plans, as a responsible steward to the environment, the industry, and the economy.

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**TESTIMONY OF
BILL CROWTHER
PRESIDENT
ATLANTIC ENERGY ALLIANCE
BEFORE THE
SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES
HEARING ON 2017-2022 OCS OIL AND GAS LEASING PROGRAM
May 19, 2016**

Good afternoon Chairman Murkowski, Ranking Member Cantwell and Members of the Committee. My name is Bill Crowther. I am President of the Atlantic Energy Alliance, an organization dedicated to economically and environmentally sound development of OCS oil and gas resources off the coast of South Carolina. Thank you for inviting me to testify this afternoon.

We were very pleased with the Interior Department's initial decision to include portions of the Mid- and South Atlantic in the 2017-2022 Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program, including areas off the coast of South Carolina. We were encouraged by the decision to further analyze the mid and south Atlantic areas, which have not been included in a leasing program for over two generations. To date, over 85 percent of the outer continental shelf has been shuttered to exploration for decades. We felt that consideration of new areas in the Atlantic was a step in the right direction.

Obviously, we were very disappointed in the more recent decision to remove the Atlantic areas from the Proposed Program. For over 40 years, energy self-sufficiency has been a major U.S. policy goal. In 2016, we are closer than ever to that goal, primarily as a result of new development of onshore oil and gas resources, as well as so-called alternative or unconventional energy sources. Yet approximately 87% of our national offshore acreage remains undeveloped. Offshore resources, particularly in the East, are the key to realization of U.S. energy self-sufficiency. Relying on antiquated data BOEM still estimates that the Atlantic OCS holds 4.72 billion barrels of oil and 37.5 trillion cubic feet of natural gas, and a recent study indicates that Atlantic OCS development could contribute nearly 280,000 jobs, up to \$23.5 billion annually in economic activity, and \$51 billion in cumulative government revenue.

A recent analysis of the Port of Georgetown provides a snapshot of the potential benefits to coastal S.C. An economic impact study performed for the Port in 2010 found, in general, that any new activity at the Port would generate new jobs, income and spending in the local economy. More specifically, the report found that every increase of 500,000 tons annually can be expected to yield the following benefits for the local economy:

- 42 new jobs in the area;
- \$1.3 million annually in new local household income;

- \$4.4 million in total annual local economic output.¹

It remains to be seen how these data would translate into specific benefits from OCS development, but it is easy to see that the potential benefits would be substantial. With respect to long-term benefits, a comparison to Port Fourchon, LA, now the nation's largest energy port, may be instructive. At Port Fourchon, two companies had located on port property in 1978. As of August 1999, 124 companies were located there. Leasing activity increased substantially as a result of increased offshore oil and gas activity on the Outer Continental Shelf. For example, there were 50 lessees and 113 businesses at Fourchon in June, 1998; less than a year later in May, 1999 there were 54 lessees and 124 businesses. New businesses located at the port at the rate of one per month.²

In South Carolina, such benefits would accrue to a population in dire need. Georgetown County and its neighboring counties were among the hardest hit in the Great Recession. In 2009, the unemployment rate in Georgetown County was 12.1%. In Horry County it was 11.9%, and in Williamsburg County the rate was 14.8%. All of these jurisdictions have made recent progress, and the respective rates in 2013 were 8.2%, 8.5% and 10.2%. However, this progress remains

¹ Schunk, "The Port of Georgetown: Potential Economic Impacts of Port Resurgence," Coastal Carolina University (February 2010).

² U.S. Dept. of Interior, Minerals Management Service, "Lafourche Parish and Port Fourchon, LA: Effects of the Outer Continental Shelf Petroleum Industry on the Economy and Public Services, Part 1 at p. 2 (May 2001).

tentative, and all three counties remained well above the national unemployment rate of 6.1% in June 2014.

Like all South Carolinians, we treasure our coastal ecological resources. We understand that they are an historical basis for our society and a major driver of our current economy. We would not risk them for economic development at any cost. At the same time, our coastal resources have sustained our people for centuries. We see OCS development as the logical next step in this progression, especially as revenue from traditional uses has declined steeply over the past decade. On the basis of the information available to date, it appears that the risks of OCS development, if properly conducted, are remote and manageable, and that existing federal and state regulatory processes are more than adequate to provide the necessary protection. Revenues from OCS development could be used to ensure that these protections are maintained and strengthened as may be necessary. We do not see this as a choice between ecology or development. We believe that both can be maintained simultaneously, and are willing to work hard to produce that result.

It is apparent that most citizens in the affected areas of South Carolina share our views. While the Interior Department cited local opposition as a primary justification for dropping the proposed Mid-Atlantic areas, recent analyses show that opponents are a decided minority and a poll from earlier this year concluded that 67 percent of SC registered voters, Republicans, Democrats and Independents

support producing offshore oil and natural gas resources. Another poll, segregated to the coastal SC Congressional Districts 1 and 7, confirmed 58 percent support for offshore energy exploration.

Apart from these points, obtaining an updated oil and gas resource estimate is critical to ensuring informed decisions related to possible future Atlantic development. With existing estimates based on decades-old technology, it is vital that new seismic exploration using modern techniques be applied to ensure economically and environmentally-efficient activity should development ultimately take place. This is still true following the exclusion of Atlantic leasing from the next Five Year program. The necessary federal permits should be issued immediately to allow for these new estimates to be obtained and better inform future decisions.

For all of these reasons, we urge the Committee to take all possible steps to restore the mid-Atlantic areas to the 2017-2022 OCS plan, or otherwise expedite exploration and development of the Atlantic areas. To ensure that South Carolina is adequately positioned to bear costs related to development in adjacent waters and has access to the same benefits as other states with offshore oil and gas activity, we also support the expansion of revenue-sharing to South Carolina and other states beyond the Gulf of Mexico where OCS development may occur. Thank you and I would be happy to answer any questions you may have.

In closing, we appreciate your attention to this important matter and respectfully request your support in keeping the Atlantic in the Proposed Program, moving forward with promptly approving Atlantic oil and gas seismic permit applications, and expanding revenue-sharing to all states with adjacent offshore oil and gas activity.

Statement for the Record: International Association of Drilling Contractors

Senate Energy and Natural Resources Committee

Hearing Title: "To examine the Bureau of Ocean Energy Management's 2017-2022 Oil and Gas Leasing Program"

Thank you for the opportunity to submit written comments for the record. The International Association of Drilling Contractors (IADC) is a trade association representing the worldwide interests of the onshore and offshore drilling industry since 1940. With over 1,400 members, IADC membership reaches nearly every state in the United States. Our members operate the vast majority of onshore rigs in the United States and offshore, our drilling contractor members operate all the Mobile Offshore Drilling Units (MODUs) operated in areas subject to the jurisdiction of the United States. Drilling contractors, who are at the leading edge of the oil and gas industry, build, own, and operate rigs without which no well could be drilled, completed, produced or worked-over. These comments are offered without prejudice to communications that may be offered directly by IADC member companies.

As a trade association, IADC's purpose is to advance drilling and completion technology, improve industry health, safety, environmental and training practices; and champion sensible regulation and legislation which facilitate safe and efficient drilling. Through 17 Committees and 15 global Chapters, IADC creates the space for members to connect, collaborate and create solutions aimed at addressing the industry's most critical issues.

IADC members support a robust 5-year offshore oil and gas leasing program as without a robust plan, opportunities to explore, develop and produce offshore natural resources does not exist. A robust offshore oil and gas leasing program supports jobs throughout the country, not just in the states that host offshore production, but throughout the supply chain. In addition, a robust offshore program is important as the U.S. continues to consume 20 m/b/d and that number is expected to remain constant over the next several decades. According to the EIA, in 2015, about 24% of the petroleum consumed by the United States was imported from foreign countries, the lowest level since 1970. It is by no coincidence that this is the same year the U.S. became the top producer of oil and natural

gas and the U.S. offshore production contribution to that was roughly 17% of total the U.S. oil production, or 1.4 m/b/d. Imports from the Persian Gulf were roughly 1.5 m/b/d. If the U.S. does not continue to pursue a robust 5 year leasing plan, then that could potentially leave an additional 1.4 to 1.9 m/b/d to import to meet our demand needs. On the flip-side, if the U.S. were more aggressive in leasing more acreage in the Eastern Gulf, Alaska, the Atlantic and even the Pacific, it could virtually eliminate the need for imports.

Based on the latest federal estimate, the U.S. OCS contains approximately 90 billion barrels of oil and over 404 trillion cubic feet of natural gas. However, over 85% of the OCS remains off limits for leasing. The only areas open to OCS production lie in the west of the Gulf of Mexico, a few legacy leases off California, and areas in Alaska. New areas in the Atlantic off Virginia, the Carolinas and Georgia should have been included in the 5-year plan for 2017-2022 and IADC members are disappointed by the Department of Interior's short-sighted decision to take these areas out of the upcoming plan. In order to continue the development of our nation's offshore resources, Congress may need to step in and ensure new areas are included for continued development on the OCS.

In particular, it is important that all 26 OCS regions are made available to be fully explored utilizing the latest seismic technologies to delineate the oil and gas potential. The Atlantic OCS contains an estimated 4.72 billion barrels of oil and 37.5 trillion cubic feet of natural gas, while the Eastern Gulf of Mexico holds an estimated 5.07 billion barrels of oil and 16.08 trillion cubic feet of natural gas. Those amounts represent more than 20 times the 2012 federal offshore oil production and over 94 times the 2012 federal offshore natural gas production. It is strategically important for the U.S. to confirm the availability of these resources and their potential for economic development.

In the Arctic, it is vital that the U.S. maintain and accelerate opportunities to develop offshore oil and gas in the resource-rich Beaufort and Chukchi Seas. The region holds an estimated 23.6 billion barrels of oil and 104 trillion cubic feet of natural gas. The U.S. must assert its economic interests in the Arctic at a level commensurate to the initiatives of its Arctic neighbors and competitors.

The demand for secure and affordable energy is clearly the driver for drilling activity. Changing market conditions, both in the US and internationally, have dramatically impacted the oil industry as a whole, creating an environment of caution and uncertainty for the drilling contractor. Baker Hughes has issued the rotary rig counts as a service to the petroleum industry since 1944, when Hughes Tool Company began weekly counts of active U.S. and Canadian drilling activity. On 4 September 2015, Baker Hughes' reported 33 offshore units in US waters compared to 65 in October 2014; and now in 2016 there are 24 offshore rigs working. This is a market reduction of almost exactly 50% within a 12 month period and 63% reduction in 19 months.

The US Gulf is one of the highest cost basins in the offshore sector in which US companies operate. Uncertainty in oil and natural gas markets, which will likely continue over the next several years, is clearly a major factor in declining rig count in US waters. However, in addition to this market uncertainty, the US oil and gas industry is contending with layers of new regulatory proposals that further increase uncertainties and, if implemented, will impose further costs on the US industry, rendering it less competitive in the global marketplace.

IADC will never object to regulations that are necessary or enhance safety and operational integrity. And, as in any business, drilling contractors require confidence in and consistency of new regulations, with sufficient lead time to fully implement them. Harmful regulations impede economic growth and threaten this industries survivability.

Throughout IADC, our members share the belief that for the prevention of blowouts, explosions and fires, well control is the most critical area. IADC and member experts from across all areas of the industry are working together, and ahead of governments everywhere, on the improvement of competency programs and technical solutions in well control performance.

Within the context of well control IADC has just launched WellSharp™, which is a root and branch overhaul by all of industry of how training is delivered and knowledge verified for keeping wells in a safe state throughout their life span, and particularly for avoiding blow-outs.

IADC accredits training institutions, whether commercial or company in-house, to conduct training that meets or exceeds the curriculum requirements set forth in WellSharp™. The new standard requires trainees to be more engaged in the learning process and to undergo individual skills assessments appropriate to their specific well control roles and responsibilities. The knowledge-assessment database identifies specific knowledge gaps and allows instructors to review and close these gaps with each trainee before the completion of training. The system provides metrics regarding the alignment between the course taken and the trainee's job position and affords analysis of instructor performance. This is a truly unique, multifaceted program developed to accomplish a step change in well control competency, enhancing crew capabilities and eliminating errors.

The Macondo incident provoked the assemblage of the largest ever collaboration of well control subject matter experts and principals to create solutions to, and apply continuous improvement in, well control performance. A major focus of these efforts has been the API standards program and other international standardization platforms. IADC has connected its members to work collaboratively as subject matter experts on a vast number of standards committees.

Industry has taken its own lead to fulfill the responsibility to secure safer, cleaner and more efficient drilling operations and IADC also strives to support and to work with government agencies developing regulations that are targeted, relevant and proportionate. Regrettably, recent US offshore regulatory initiatives could actually lead to a less safe drilling environment.

Overall, the next three years will be challenging for the drilling contractor with the uncertainty over oil prices and federal regulations. It remains to be seen how industry fares in the upswing as a result of the impacts of potentially deleterious regulation such as are currently proposed and being implemented. The US industry has by its innovation and advanced technology secured both an energy price miracle for U.S. consumers and the world's top spot in oil production. The question U.S. policy makers must decide is whether their ambition is for the U.S. to responsibly develop these resources and to continue to set an outstanding world example, or bequeath that responsibility to another jurisdiction.



Native Village of Pt. Lay

IRA Council

P.O. Box 59031

Point Lay, Alaska 99759

Ph # 833-5052 Fax# 833-8868

nvp.lra@gmail.com



RESOLUTION 2016-07
Resolution calling for the department of the Interior to refrain from holding
lease sales in the Arctic Ocean

WHEREAS, Alaska's Indigenous peoples are inextricably linked to the land and sea; the natural world safeguards our food security, community well-being and cultural integrity; and,

WHEREAS, The Arctic Ocean and surrounding ecosystem have sustain Arctic Indigenous peoples for thousands of years and,

WHEREAS, the Arctic Ocean has been recognized through science and traditional knowledge as one of the most biologically important places on Earth and,

WHEREAS, the Arctic Ocean is home to whales, seals, walrus, and other migratory animals that ensure food security for many Alaska Tribes and,

WHEREAS, many Tribes along the Arctic coast continue to share and trade traditional foods from the Arctic Ocean with other Indigenous communities and,

WHEREAS, food security is a basic human right recognized by the United Nations and affirmed by the United States in the International Covenant of Civil and Political Rights; and,

WHEREAS, climate change is causing loss of sea ice, severe coastal erosion, extreme weather, ocean acidification, and changes to the migratory animals we depend on for our food security and,

WHEREAS, the loss of sea ice and other impacts from climate change are having an impact on our ability to hunt and provide for our families and,

WHEREAS, increased shipping and vessel traffic through the Arctic waterways and the threat to offshore drilling and exploration place additional impacts on the Arctic Ocean and coastal communities and,

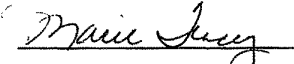
NOW, THEREFORE, BE IT RESOLVED that a comprehensive science and management plan that integrates community involvement, long-term monitoring, accounts for cumulative effects, and decision-making based on science and traditional knowledge must be developed and scientifically proven mitigation measures in place to provide oversight to Arctic industrial activities that could impact our food security, way of life, and the health of our peoples, and

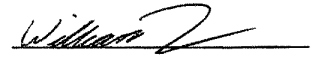
BE IT FURTHER RESOLVED that the United States should not issue any new oil and gas leases in the Arctic Ocean until such a comprehensive and integrated Arctic management plan is implemented, Areas of ecological and cultural significance are deferred or withdrawn from oil and gas leasing, a mandate for zero charge discharge is established, and only if exploration and development is proven to not jeopardize the safety of nearby villages, tribal health and food security, and the migratory animals that Tribes depend upon, and

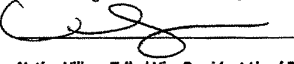
BE IT RESOLVED that the United States must consult with and engage in a process with Tribes to determine appropriate areas to be deferred or withdrawn from oil and gas leasing and other protective measures for the important cultural, biological, and subsistence use areas of the Arctic Ocean ecosystem to ensure our food security, archeological cultural identity, and protect our way of life.

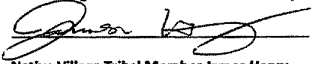
Certification: This certification that the above resolution 2016-07 was adopted at a regular council meeting of the Native village of Point Lay IRA Council at which time a quorum was established. This resolution was adopted by a vote of,

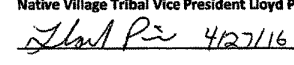
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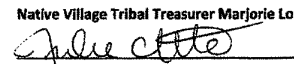

Native Village Tribal President Marie Tracey

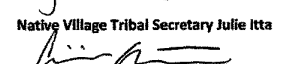

Native Village Tribal Member William Tracey Jr.


Native Village Tribal Vice President Lloyd Pikok


Native Village Tribal Member James Henry


Native Village Tribal Treasurer Marjorie Long


Native Village Tribal Secretary Julie Itta


Native Village Tribal Member Cilia Attungowruk