

**STATEMENT OF ADAM SIEMINSKI**

**ADMINISTRATOR**

**ENERGY INFORMATION ADMINISTRATION**

**U.S. DEPARTMENT OF ENERGY**

**Before the**

**COMMITTEE ON ENERGY AND NATURAL RESOURCES**

**U.S. SENATE**

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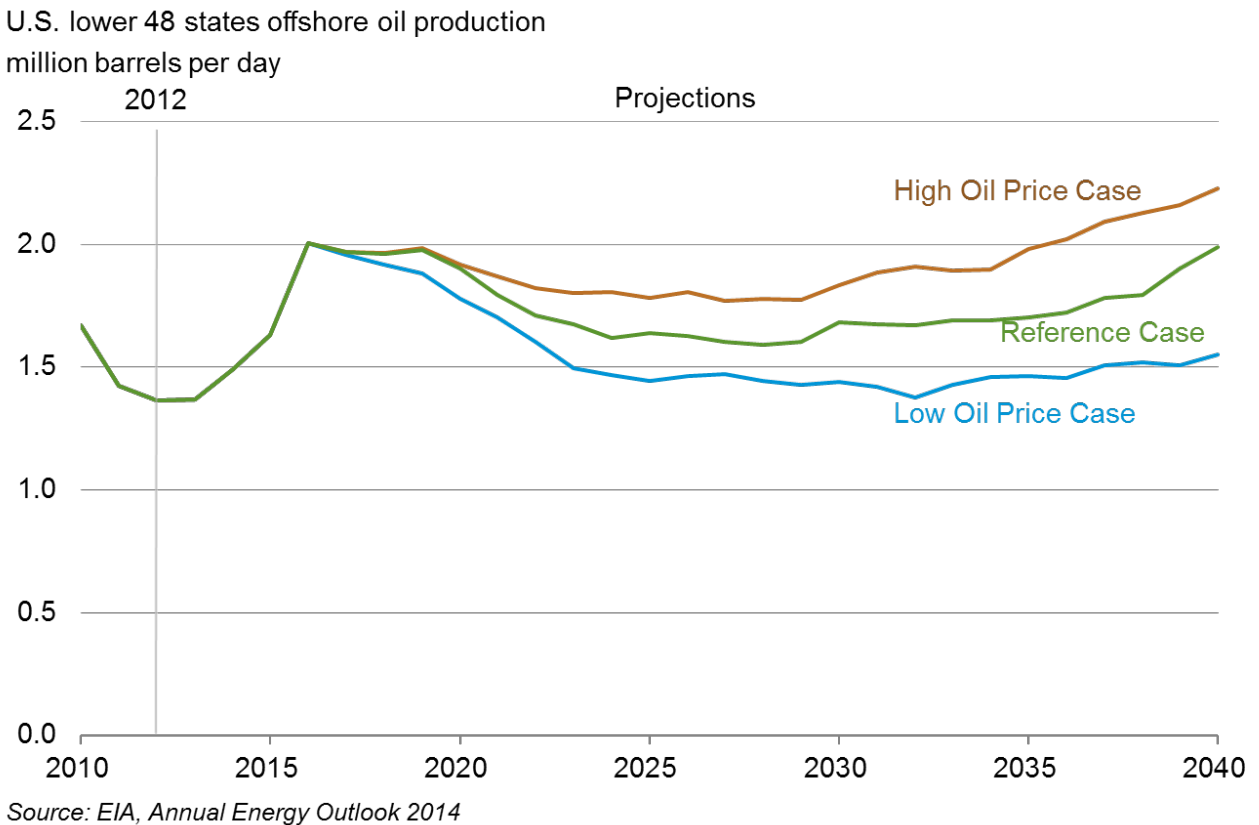
Chair Landrieu and Members of the Committee, I appreciate the opportunity to appear before you today.

The Energy Information Administration (EIA) is the statistical and analytical agency within the U.S. Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment. EIA is the nation's premier source of energy information and, by law, its data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views expressed herein should therefore not be construed as representing those of the Department of Energy or any other federal agency.

As requested, my testimony focuses on the outlook for oil and natural gas development on the Outer Continental Shelf (OCS). My testimony draws on EIA's June Short Term Energy Outlook (STEO) and the 2014 Annual Energy Outlook (AEO2014) which includes long-term projections through 2040. EIA released the Reference case projections for the AEO2014 in December. The Reference case is intended to represent an energy future through 2040 based on given market, technological, and demographic trends; current laws and regulations; and consumer behavior. EIA recognizes that projections of energy markets are highly uncertain and subject to geopolitical disruptions, technological breakthroughs, economic fluctuations, and other unforeseeable events. In addition, long-term trends in technology development, demographics, economic growth, and energy resources may evolve along a different path than represented in the Reference case projections.

The complete *AEO2014*, which was released in May, includes alternative assumptions regarding resources, technology advances, and world energy prices that can significantly affect projections for oil and natural gas production. The impact of alternative assumptions in these two areas were explored in *AEO2014* side cases that address high and low oil price scenarios and more optimistic and pessimistic assumptions regarding the resource base and the pace of technology advances. The impacts of the revised assumptions in the alternative scenarios can be substantial. For example, projected offshore oil production in 2040 is roughly 10% above the Reference case level in the High Oil Price scenario (Figure 1).

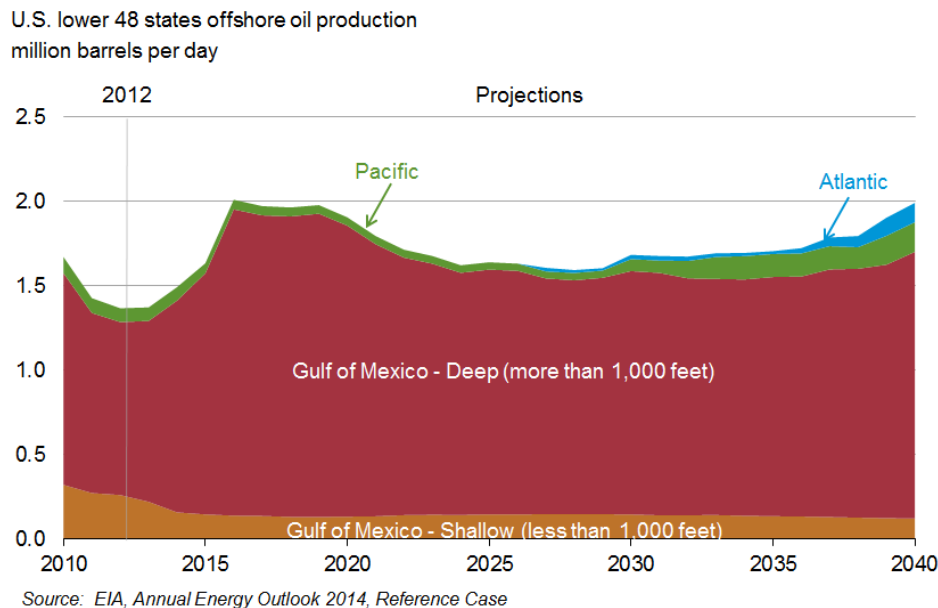
**Figure 1. U.S. lower 48 states offshore oil production**



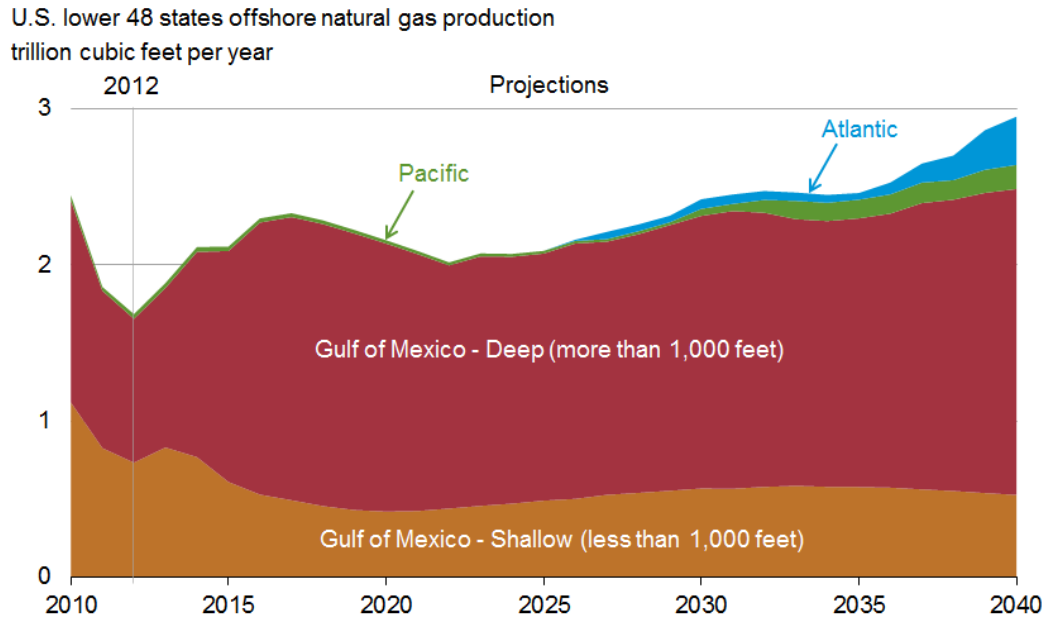
In the June STEO, based on forecasts of annual average production from 2013 to 2015, the federal Gulf of Mexico oil production increases from 1.3 million bbl/d to 1.7 million bbl/d. Natural gas production is forecast to decrease from 3.6 Bcf/d to 3.2 Bcf/d over the same period because natural gas prices remain low relative to oil prices.

Looking at the longer-term picture, in the *AEO2014* reference case, Gulf of Mexico (federal and state) oil production varies between 1.3 million bbl/d and 2.0 million bbl/d over the projection period, 2013-2040 (Figure 2). Natural gas production in the Gulf of Mexico is forecast to increase from 1.9 Tcf (5.2 Bcf/d) to 2.5 Tcf (6.8 Bcf/d) over the same period (Figure 3). Toward the end of the period, the pace of exploration and production activity quickens, and new large development projects, associated predominantly with discoveries in the deepwater and ultra-deepwater portions of the Gulf of Mexico, are brought on stream. New offshore oil production from the Alaska North Slope partially offsets the decline in production from onshore North Slope fields, as shown in Figure 4.

**Figure 2. U.S. lower 48 states offshore oil production**

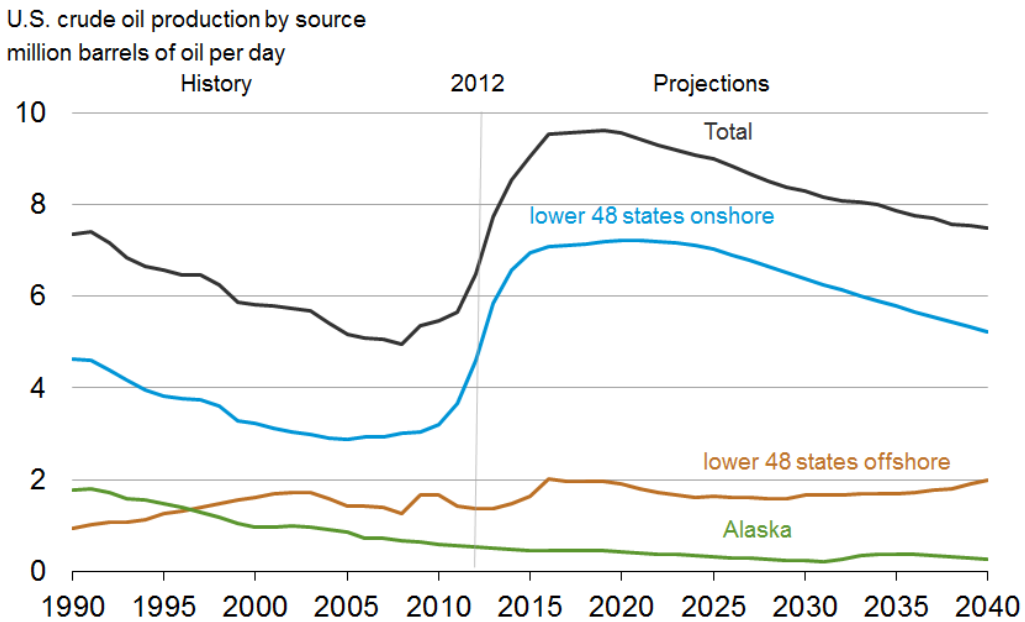


**Figure 3. U.S. lower 48 states offshore natural gas production**



Source: EIA, Annual Energy Outlook 2014, Reference Case

**Figure 4. Domestic crude oil production by source in the Reference case, 1990-2040**



Source: EIA, Annual Energy Outlook 2014, Reference Case

For the High Oil and Gas Resource case, we assumed that there are more resources in Alaska and in the lower 48 offshore, including the development of tight oil in Alaska and 50% higher

technically recoverable undiscovered resources for other Alaska crude oil and the lower 48 offshore (which reflects more favorable resolution of the uncertainty surrounding undeveloped areas where there has been little or no exploration and development activity, and where modern seismic survey data are lacking).

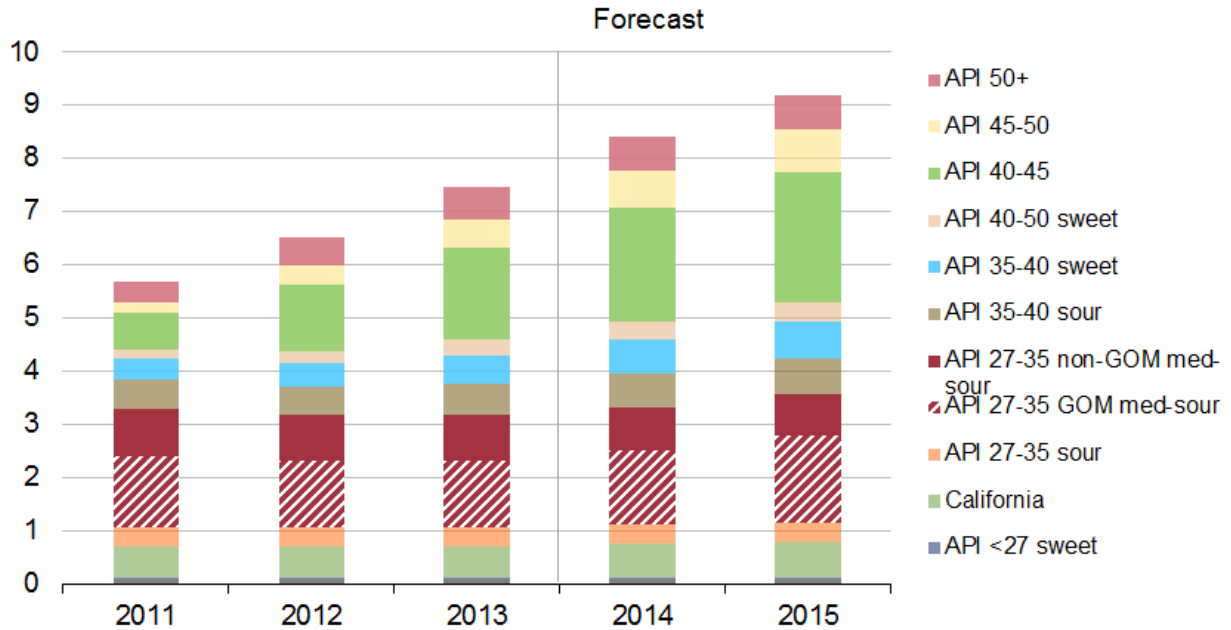
The Low Oil and Gas Resource case reflects only the uncertainty around tight and shale crude oil and natural gas resources—specifically, whether the performance of current and future wells drilled will actually be less than estimated. All other resource assumptions are unchanged from the Reference case.

Another aspect of Gulf of Mexico production that I would like to highlight relates to the quality of the crude. Recent and forecast increases in domestic crude production have sparked discussion on the topic of how rising crude oil volumes will be absorbed. EIA recently released a short-term forecast of domestic production by crude type, supplementing the May 2014 overall production forecast provided in the STEO. Forecasts of production by crude type matter for several reasons. First, U.S. crude streams vary widely in quality. Second, the economics surrounding various options for the domestic use of additional domestic oil production are directly dependent on crude quality characteristics. EIA analysis of current and forecast crude oil production indicates that U.S. supply of lighter API gravity crude will continue to outpace that of medium and heavier crudes (Figure 5). More than 60% of EIA's forecast of production growth for 2014 and 2015 consists of sweet grades with API gravity of 40 or above. The type of heavier crude from the OCS, in particular, the Gulf of Mexico, however, is particularly favored by refineries in the Gulf Coast. Gulf of Mexico oil production is understood to be API gravity

range of 27-35 degrees, and is medium sour. Alaska crude, on and offshore, is in the same API gravity range.

**Figure 5. U.S. crude oil production by API gravity**

U.S. crude oil production by type  
million barrels of oil per day



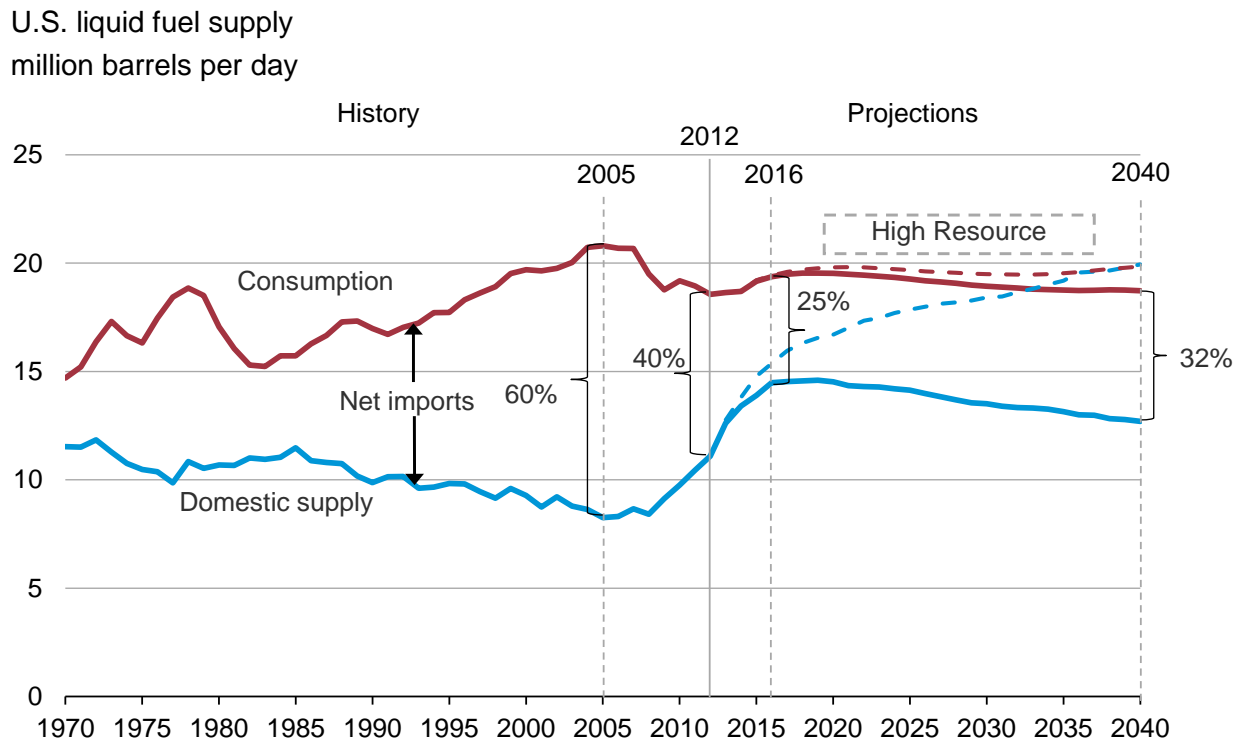
Source: EIA, [DrillingInfo](#), Colorado DNR, Texas RRC

I would like to mention EIA’s pending proposal to expand one of our important production surveys. The quality and timeliness of well-level data on production by crude type used to develop the estimates vary widely across states. As part of its continuing effort to improve data on oil and natural gas production, EIA is now seeking public comment on a plan to expand its current collection of monthly natural gas production data in six states to include both oil and natural gas production in 19 states plus the Gulf of Mexico. The proposed data collection, which EIA plans to launch in 2015, would provide information on production by crude type. Updated estimates of regional production by crude type will also be needed as new plays start

commercial development, because production from new plays will change the distribution of production by crude types in the regions where those plays are located.

Finally, to put the offshore development into the national energy context, my last slide shows that under EIA's reference case, net oil import dependence declines from a high of 60% in 2005 to 25% in 2016 (Figure 6). Under the high resource case, net import dependence declines rapidly and could approach net oil self-sufficiency in the period after 2030.

**Figure 6. U.S. crude oil production forecast**



Thank you for the opportunity to testify here today. I would be happy to answer any questions you may have.