Dear Representative Markey:

Thank you for your letter dated January 11, 2012, and for the kind words regarding our first and highly successful offshore oil and gas lease sale since the Deepwater Horizon oil spill. I am proud of the work performed by the Bureau of Ocean Energy Management (BOEM) in designing and conducting this sale.

You raised a number of complex questions about our offshore oil and gas auction process. I have asked the Director of BOEM, Mr. Tommy P. Beaudreau, to answer your questions. His thorough responses are enclosed.

We will continue to evaluate and refine our process for leasing rights to oil and gas resources in Federal waters offshore of the United States, as we have done over the past three years.

Sincerely,

Ken Salazar

Enclosure
REPRESENTATIVE EDWARD J. MARKEY’S QUESTIONS
AND THE BUREAU OF OCEAN ENERGY MANAGEMENT (BOEM) RESPONSES

1. Why is there so little competitive bidding in offshore lease auctions? Would it be preferable to have more competitive bidding? Why or why not?

There are complex, market-based reasons behind the observed level of competition in Outer Continental Shelf (OCS) auctions of oil and gas tracts.

First, the greatest industry interest in the Gulf of Mexico lies in the deepwater. For example, in Western Gulf Lease Sale 218, held in December 2011, 93 percent of the tracts receiving bids were in 400 meters (1312 feet) of water or more. While there are well over a hundred companies qualified to operate on the OCS, only a relatively small subset of them have the technical capability and financial wherewithal to manage or operate deepwater projects while meeting the environmental and safety standards required by BOEM’s and the Bureau of Safety and Environmental Enforcement’s (BSEE) regulations. In addition, the costs in deepwater limit the number of projects any one company will invest in and undertake. These factors limit the amount of competition one should expect in the deepwater Gulf of Mexico, where the majority of lease sale activity lies.

Second, a commonly-cited explanation for the number of bids per tract or the number of competing companies in an auction is the broad availability of marginally valued or non-prospective tracts offered under the area-wide leasing format, employed since 1983. Exactly which tracts may be considered marginal among the full set of tracts offered is not known with much certainty before the auction sale. However, reducing the acreage available in a sale, in order to promote competition for the areas offered, may have the adverse effect of lowering rates of exploration, development and production, particularly over the long term.

Third, it is important to consider that many oil companies pursue a capital allocation strategy that involves diversification of their exploration portfolios around the world. While industry investment in exploration and development in the United States OCS remains strong, companies spread their capital investments across global opportunities.

It is difficult to promote increased competition directly through the auction format without causing offsetting adverse effects on revenue and production. Everything else being equal, increased competition in an open auction would tend to raise the high bids received in a sale. However, in a sealed bid auction, the level of competition is not known when the bids are submitted, so the effects of policy initiatives to increase competition overall may have adverse, unintended consequences that must be considered.
There have been suggestions that refinements in the U.S. leasing system could increase high bonus bids offered in sales by employing, for example, multiple round bidding instead of single round sealed bidding. Although using multiple rounds may give the appearance of increasing competition, it is likely to lower — not raise — high bids because each tract would sell at just above the second highest valuation of it. For example, our analysis of data from 21 lease sales held in the Gulf of Mexico from 2000 through 2010 shows that modifying the auction format for issuing oil and gas leases to eliminate single round bidding could result in a substantial absolute loss in traditional cash bonus bid receipts, even with respect to tracts where competition has been the strongest (as measured by the number of bids received).

Accordingly, BOEM has sought to enhance competition under a sealed bidding format, while minimizing adverse program effects. A recent example is that BOEM has substantially raised the minimum bid on deepwater tracts. The main goal of raising the minimum bid is to focus bidder attention on the highest valued tracts while retaining in the Government’s inventory more marginally valued tracts, which are likely to grow in value in the future relative to currently higher-valued tracts. Another policy change made recently, which also tends to enhance competition by focusing bidder attention on higher-valued tracts, is to reduce the time in which a successful purchaser of a lease may hold a tract in selected deepwater depths before drilling its first well.

The combination of higher minimum bids and shorter allowed times within which to commence drilling is intended in part to enhance competition on the best prospects and thereby raise auction revenues generated in offshore lease sales, without negatively affecting overall program revenues, the level of oil and gas production, or the ability to protect the environment. The development of these policies and their parameters as a means to improve lease sale performance while protecting multiple program goals is based on thorough and rigorous analysis of the accumulated understanding of the current OCS oil and gas auction market.
2. Economists who have studied auction formats have advised the government in other contexts to use multi-stage auctions that are designed to encourage competitive bidding. The Federal Communications Commission (FCC), for example, uses a simultaneous multi-round auction format, conducted through the Internet, for selling electromagnetic spectrum. Bidders first simultaneously submit sealed bids for spectrum licenses. High bids (and high bidders) are then announced at the conclusion of the first round of bidding, and after a set period of time, the auction moves on to a second round in which bidders have an opportunity to beat the high bids from the first round. To do this, they must meet (or beat) a minimum required bid that exceeds the previous high bid by a predetermined percentage or increment. This process is then repeated until no new bids are received. BOEM is now considering auction formats for selling offshore wind leases, and in December asked for public comment on a format like that used by the FCC for spectrum. Notably, BOEM is not considering a format like that used for offshore drilling lease sales. Why is that? Does Interior believe that any of the auction formats under consideration for offshore wind would generate more competitive bidding for offshore drilling lease sales? Why or why not?

At this time, BOEM is not pursuing multi-round auction formats for use in offshore oil and gas lease sales. Variations of the multi-round auction design in the form of simultaneous ascending clock auctions and package clock auctions are being considered for auctioning the rights to offshore wind leases. As discussed above, these auction types are unlikely to increase competition and could result in reduced revenue to the United States even where there is significant industry interest in and competition for particular tracts.

In anticipated Federal offshore wind energy lease sales, a key programmatic consideration is that the auction design produces results wherein the company that values the property right the most tends to prevail in the auction and, therefore, has the best chance of successfully harvesting the value of the wind resource. This policy considers the important differences of ability among competing companies in an emerging industry to develop efficient, effective, and timely projects, secure financing, and obtain power purchase agreements. While similar programmatic considerations also are important in the oil and gas sector, that sector is more mature and there are significantly more companies that are able to effectively explore prospects and develop discoveries.

As discussed above, it is far from certain that a multi-round auction format would increase competition for offshore oil and gas leases, or that the benefits of any potential increase in competition would outweigh the adverse consequences of a change in auction format. If any of the additional competition that may emerge under a multi-round bidding approach for oil and gas leases is composed mostly of new, relatively weak bidders, as would be reasonable to expect, then it is unlikely that there would be an increase in aggregate bonus bids from offshore oil and gas lease sales.
The BOEM funded a study of alternative leasing policies that was completed in 2010.1 Entitled “Policies to Affect the Pace of Leasing and Revenues in the Gulf of Mexico,” the study used an experimental design that imitates oil and gas leasing circumstances. Based on this analysis the study estimated that multiple round bidding would sell more tracts overall, but that many of the tracts would be sold near the minimum bid. Moreover, largely as a result of high bidders paying an amount just over the second highest bid, it was projected that there would be a decrease in the aggregate high bid amounts under multi-round bidding. The 2010 study estimated that multi-round bidding would reduce revenue sharing receipts to state governments.

Accordingly, with respect to offshore oil and gas leasing, sealed, single round bidding offers substantial advantages in terms of ensuring fair value and Government returns as compared to multiple round bidding formats. Because of the significant uncertainty about the economically recoverable resources that may underlie any given OCS tract, there typically will be a wide divergence in the values placed on these tracts by competing bidders. Under traditional sealed bidding, these uncertainties work to the advantage of the Government as the seller because the highest bidder is obligated to pay its high bid for the tracts it wins. However, in a multi-round auction, in which price discovery plays such a crucial role in identifying the bidder having the highest tract value, the highest bidder only needs to reveal the willingness to pay a small increment above the second highest bidder. This difference in bidding outcomes for the two auction types is especially favorable to sealed bidding when there are only a few, or even one, bidders per tract and estimates of tract value vary widely among bidders.

The BOEM has focused its conventional energy revenue policy considerations on areas other than auction format to encourage competition, induce more aggressive bidding, and concentrate bidder attention on a smaller set of prospective tracts. Over the past several years, the selected policy changes have consisted of raising applicable royalty rates, increasing the rental fee and adding an escalating annual fee component, raising the minimum bid, and shortening primary lease term drilling requirements.

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1 See http://www.boemre.gov/econ/ExternalStudies/2011_014.htm for a brief overview of this study and links to a summary version or the full technical report.
3. I am interested in whether a spectrum-like auction format would work for offshore lease sales. One problem in offshore lease sales is the number of tracts put up for auction—it may be difficult for bidding companies to assess the value of several thousand tracts. A multi-round auction could provide a signal to the market about which tracts are valuable and worth investigation. As noted, tracts that are re-auctioned after BOEM has rejected a bid typically fetch higher prices because companies are alerted that others have found such tracts valuable. In a multi-round auction, the number of tracts would be reduced to a far smaller number after the first round—that is, tracts receiving no first-round bids would be eliminated from the sale. Companies could then review and investigate the tracts that received bids and potentially submit higher bids in the next round of bidding. They could even bid on tracts they did not bid on in the previous round. The Outer Continental Shelf Lands Act (OCSLA) directs that auctions for offshore leases be conducted by sealed bid, but it does not otherwise specify and auction format. Under OCSLA, could BOEM choose to hold a multi-round auction in which high bids are disclosed after each round (perhaps withholding the identities of high bidders, if necessary)? If so, would BOEM consider testing such a format in a future offshore lease sale to see how it works? Why or why not?

The Outer Continental Shelf Lands Act (OCSLA) requires sealed bidding. While a single round, sealed bidding auction is less susceptible to anti-competitive agreements among participating bidders than would be multi-round bidding, a variety of methods have been developed over the past 60 years since the OCSLA was enacted that could be used to discourage this behavior. However, some of these methods, such as bidding activity requirements and rules restricting information sharing, would complicate the multi-round auction and make it more difficult to achieve the optimal level of auction efficiency and participation.

Differences in the nature of oil and gas development relative to offshore wind projects, which BOEM views as much more akin to electromagnetic spectrum ventures, also bear on the suitability of multi-round bidding formats. In the case of oil and gas resources, petroleum companies can develop a deposit through the acquisition of a single OCS tract positioned over the geologic play. Then, to the extent a deposit spans more than one OCS tract, either attempt to lease the relevant, adjacent tracts in the same or subsequent auctions, or enter into a unitization and joint-development agreement with other leaseholders once the deposit has been further delineated and quantified. However, individual OCS tracts are very poor substitutes for one another.

In contrast, economically viable offshore wind and electromagnetic spectrum ventures require multiple contiguous tracts or bands or, more generally, lots formed into a single, large package. This is the case because of the importance of complementary factors between adjacent lots. In addition, as prices rise in subsequent rounds of bidding, the substitutability of lots for wind energy projects is conducive for using multi-round auctions to optimize the bidder’s final winning package.
For these reasons, bidders for the rights to wind energy leases and electromagnetic spectrum require considerable flexibility during the bidding process to enable them to initially acquire large, contiguous, efficiently configured areas during the competitive bidding stage. Under these conditions, an auction process such as multi-round bidding, which allows for price discovery and substitution of one lot for another during the auction, is necessary to assembling an optimal allocation of available lots while earning a fair return to the seller.

A similarly compelling set of needs supporting the use of multi-round bidding does not apply to oil and gas properties. In addition, OCSLA specifically limits tract size to nine square miles, unlike offshore renewable energy where a size restriction is not imposed by statute. Thus, one of the important benefits of multi-round bidding for wind energy leases or spectrum property rights — i.e., flexibility in lot size — is absent in the oil and gas program. This limitation makes it less necessary to consider use of multi-round bidding in oil and gas sales.

Indeed, the main benefit to some bidders in oil and gas sales which employed a multi-round procedure might well be the “free-rider” effect. Depending on the information revealed between rounds, less informed bidders could focus their interest on those tracts that better-informed bidders have identified through their bids as having potential value. While this scenario may at first appear to increase competition and perhaps raise government revenues, that perspective may be misleading without consideration of second-order effects. A potential effect of the free-rider circumstance is to discourage the acquisition and evaluation of data and information by the better informed companies, because that information could be partly revealed through the bids of these companies in a multi-round auction sale. Alternatively, the stronger bidders may attempt to disguise their true interests by bidding on tracts of little or no anticipated value in early rounds of the auction. Should that occur, the oil and gas leasing program could be worse off, or no better off, despite the possible appearance of more competition in the bidding for tracts.

It is the last point about disguising a bidder’s true interest that would also apply to your suggestion that multi-round bidding could be conducted such that tracts not receiving bids in the first round be dropped from the auction. That policy is also likely to encourage aggressive bidders to submit minimum bids on tracts in which they have little or no interest in acquiring, simply to mask their true intent. It is clearly not in the best interests of the offshore oil and gas leasing program to indirectly induce bidders to spend money in this manner. The BOEM’s policy is to encourage companies to invest in areas with the best, not the worst, resource potential. Otherwise, we may end up with more inactive leased tracts, an issue BOEM has focused on addressing through the policy measures described above.
4. Companies regularly and carefully review their performance in offshore lease sales. In particular, they look back after exploration and development has occurred to see if they overbid, if bids were on target, or if tracts out-performed bid expectations. Such reviews help guide and improve future bidding. Does Interior regularly conduct retrospective reviews of its performance in evaluating bid adequacy, and if so, how are such reviews conducted? How often do tracts produce greater value than Interior expected in its evaluation of bid adequacy? And has Interior improved its accuracy over time? Please provide the results of any reviews conducted over the last 10 years of Interior's performance in evaluating bid adequacy.

The BOEM reviews its performance in offshore lease sales in three ways. First, while some of OCS leases ultimately do not lead to oil or gas production, all leases issued yield bonus revenue in the lease sale as well as subsequent rental income. As part of its budget formulation process, BOEM predicts the aggregate bonus receipts and number of leases sold prior to every sale using an in-house auction model called IMODEL. The IMODEL simulates a series of OCS auctions, evaluating tracts and conducting each auction using a game-theory bidding framework. After a sale, the actual bidding results are then used to calibrate and further refine this model for simulating the result of industry's bid formulations in the next sale. This review allows BOEM to analyze and adjust its bonus estimates to the ever-changing conditions of the OCS oil and gas industry.

A second performance review occurs when BOEM develops its estimated valuations of those tracts for which bidding competition alone is considered insufficient to ensure receipt of fair market value. Comparison of BOEM's independent estimate to the actual company high bids serves both to validate the extent to which BOEM recognizes the same oil and gas deposits as the high bidder and, in some cases, to reveal other accumulations or values BOEM might consider when evaluating other oil and gas deposits. As with the IMODEL calibration, these reviews improve internal processes without producing formal performance studies. The BOEM publishes its estimates of tract values and high bids received in the Phase II Decision Matrix for each sale.

The third and more formal way BOEM reviews its performance on offshore leasing is to conduct proprietary "look-back studies" on a regular basis to evaluate how well the agency predicted drilling patterns on leases issued in a sale. This is a geologic analysis, which is necessary because it is not possible to measure how much actual value any particular tract generates in a meaningful timeframe. True tract values emerge only after a 20 to 30 year period for those leases that are drilled successfully and result in production, and lessees do not provide the actual costs of exploring, developing and producing oil and gas reserves. Forecasts of the dollar value of tracts are unreliable because of the volatility over time in the numerous variables that affect actual tract value. Therefore, measures of predictive performance are best described in geologic rather than dollar terms.
Accordingly, BOEM's "look-back studies" focus on industry's prospecting tendencies to assess the quality of geological and geophysical tract evaluation, and to determine new technologies and data needed to assure receipt of fair market value in the future. The BOEM geologists, geophysicists, petroleum engineers and other experts in the Gulf of Mexico Region compare the results of exploratory wells drilled on newly leased tracts to pre-drill predictions made during the tract evaluation process following receipt of lease sale bids. Using a database of actual exploratory wells, BOEM's experts conduct statistical analyses on their predictive performance, operator drilling trends, discovery success rates and magnitudes of discoveries by water and drilling depths, and the distribution of discoveries by various classification categories. The analysis focuses on how often the experts correctly identified the geologic prospects that would be drilled by their lessees, identified those prospects that resulted in discoveries, and gauged the sizes of the discovered prospects successfully identified versus those on discoveries not predicted.

The most thorough recent "look-back study" covered seven sales over the period 1997 through 2006. This study focused on the ten largest fields discovered on tracts leased in these seven sales. This study found that the Bureau experts had successfully identified, as viable geologic prospects, nine of these ten largest discoveries. Moreover, this study showed that nearly 75 percent of the discovered resources from these 10 sales were on geologic fields identified by BOEM as viable prospects. The BOEM also conducted single sale "look-back studies" on three sales held after 2006, which showed slightly lower than the average level of predictive accuracy compared to the seven earlier sales. These disparities do not appear to be statistically significant, and may be attributable to the fact that less time has elapsed since those sales and, therefore, the leases have not yet been fully explored.
5. It is generally thought that sealed-bid auctions are less susceptible to collusion than live auctions, but collusion can still occur and the lack of competitive bidding raises concerns. The BOEM Regional Director with jurisdiction over the lease sale “may identify an unusual bidding pattern at any time during the bid review process, but before a tract is accepted,” according to DOI procedures for determining bid adequacy. Does BOEM analyze lease sale data to check for unusual bidding patterns that might indicate possible collusion or other anti-competitive behavior? If so, please describe the process for such reviews; how often they occur; any instances where unusual bidding patterns were detected; any instances where BOEM determined collusion or anti-competitive behavior occurred; and any actions taken by BOEM or its predecessor agencies in response.

The BOEM does test for indicia of non-competitive bidding patterns after each lease sale. To date, we have not found evidence of such practices. The BOEM tests for two forms of unusual bidding patterns — anomalous coincident and anomalous non-coincident bidding.

Your letter excerpts a portion of BOEM’s bid adequacy procedures, as published in the Federal Register on July 12, 1999, which relate to the detection of unusual bidding patterns that could potentially be associated with collusion or other anti-competitive behavior. This section also describes how BOEM would respond if evidence of anti-competitive bidding were detected: “In ensuring the integrity of the bidding process, the Regional Director may identify an unusual bidding pattern at any time during the bid review process, but before the tract’s high bid is accepted. If the finding is documented, the Regional Director has discretionary authority, after consultation with the Solicitor, to pass those identified tracts to Phase 2 for further analysis. The Regional Director may eliminate all but the largest of the unusual bids from consideration when applying any bid adequacy rule, may choose not to apply a bid adequacy rule, or may reject the tract’s highest qualified bid.”

After each sale in the Gulf of Mexico, BOEM conducts a formal analysis of the sale’s bidding patterns with the purpose of determining whether any pairs of companies may have submitted bids on similar sets of tracts to a significantly greater degree than would be expected to occur by chance — i.e., an anomalous coincident bidding pattern.

In the most recent Western Gulf of Mexico Sale 218, 25 pairs of companies were identified for study based on their having submitted one or more bids on tracts that received at least three total bids. The BOEM conducted a statistical analysis of the different combinations of bidding pairs based on overlapping bidding results. The BOEM then applied procedures in place since 2007 — which involve application of Fisher’s Exact Statistical Test to the data set of companies, tracts bid on, and overlapping bids — to determine whether the likelihood of the results occurring by chance for a given pair of companies was less than 10 percent. No sets of companies in Sale 218 were found to have a low bidding probability indicating a potentially anomalous coincident bidding pattern.
If any company pairs had indicated an anomalous coincident bidding pattern, BOEM would then have proceeded to evaluate whether there was a geologic explanation for the coincident bidding — for example, whether the tracts bid on by pairs of companies generally were assessed as being highly prospective. If that geologic explanation was considered reasonable, the purely statistical findings would be mitigated. Absent a reasonable geologic explanation, BOEM could decide to subject tracts in question to a further rigorous, tract-specific review.

Since this formal procedure was implemented in 2007, there have been no cases in which both the statistical and geologic analysis have indicated that anomalous coincident bidding had occurred.

A second form of anomalous bidding involves non-coincident bidding. This would involve companies submitting non-overlapping bids on a larger number of tracts in a sale than would ordinarily be expected by random chance. This form of improper bidding generally is not a concern in the Gulf of Mexico where dozens of companies participate in a sale and a substantial number of potentially prospective tracts are available. Under these circumstances, many non-overlapping bids are expected and collusion among a few companies generally would not be assured of success in avoiding overlaps by non-conspirators.

Non-coincident bidding is a more significant concern in sales on the Alaskan OCS where there typically are fewer industry participants. Again, a statistical test is used to assess whether fewer tracts received overlapping bids in a sale than might be expected owing to chance. The test is applied to bids submitted by designated company-pairs that appear to bid too infrequently against each other relative to their total number of bids. Our analysis after recent Alaska sales has not been able to preclude the likelihood that simple chance accounts for the small number of multi-bid tracts. Thus, we have not found supportable statistical evidence suggesting the existence of bidding arrangements among certain competing companies in the recent Alaska OCS lease sales.

Tommy P. Beaudreau
Director, Bureau of Ocean Energy Management
Date 2-10-12