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Quest Offshore Response to "Offshore Energy by the Numbers: An Economic Analysis of Offshore Drilling and Wind Energy in the Atlantic"

Summary of Response

In the energy industry some groups have a tendency to present the future of energy production as an "either or" situation. Many think of specific energy sources as the only possible solution to the future of energy production while ignoring the realities of a large and complicated industry.

In response to the recent report by Oceana "Offshore Energy by the Numbers", we would like to explain the methodology in our report "The Economic Benefits of Increasing U.S. Access to Offshore Oil and Natural Gas Resources in the Atlantic" much of which was mischaracterized in the Oceana report. We would also like to provide some context around the assumptions, scale and feasibility of the wind development scenario proposed by Oceana as an alternative to expanded domestic oil and gas production.

Oceana's "Offshore Energy by the Numbers" had some unfortunate mistakes in regard to our assumptions, math and estimation methods that present our work in an inaccurate way. First and most importantly, our development scheme was presented as being overly aggressive with reserve sizes, the portion of those reserves which the industry would be able to produce and the number of jobs that would be sustained by oil and gas production.

In addition to those mistakes there were also misunderstandings regarding the lifetimes of offshore projects, the offshore regulatory environment, our language around any potential revenue sharing agreements between the federal and state governments, and the reasoning behind our distribution of jobs outside of just the coastal states.

Critique of Oceana's Characterization of Atlantic Oil and Gas Development and the Quest Study

- **Total potential reserve numbers are reasonable and not aggressive.** Total oil and natural gas resources were based on the best available information for total resources in the region, on reasonable and repeatedly observed historical trends in resource appreciation, and were nearly three billion barrels of oil equivalent below the high estimate in the BOEM's most recent estimation for the region.
- **All reserves projected to be developed are economic.** In determining the portion of oil and gas resources that would be produced, large amounts of data were used to evaluate the geology of the

region, the types of reserves that would likely be discovered and the potential ability of oil and gas companies to extract those resources.

- **Project development times are reasonable.** Our study methods built historically accurate individual project development timelines, supply chain characteristics, project economics and reasonable industry investment levels into the forecasts, ensuring a realistic picture of development.
- **Oceana "recalculated" oil and gas job numbers to give an impression of reduced job potential.** Oceana averaged job potential assuming a 19 year project lifespan. In fact oil and gas job potential would extend decades into the future beyond the scope of the study.
- **Our study took a realistic approach in estimating East Coast jobs.** The analysis assumed that a significant portion of the industry supply chain would be outside of the region, especially in the early years of development. As a result of this, our jobs were more distributed and appeared smaller in state-to-state comparisons. In contrast, it appears that Oceana did not project any wind development jobs would come from outside the region.
- **The study did not claim that there is an existing East Coast/State – Federal revenue sharing agreement currently in place.** We clearly stated that agreements between the states and federal government would have to be made in a similar manner to those on the Gulf Coast in order for this to be accurate.
- **The regulatory assumptions are reasonable.** The study assumed the same regulatory environment and restrictions in place for offshore drilling and production in the Gulf of Mexico.

While our primary intent in this response was to clarify the misunderstandings involving our work, we feel it is necessary to also point out several of the issues in Oceana's study:

Critique of Oceana Wind Development Scenario

- **There is no us vs. them.** Approaching energy as an oil and gas vs. renewables situation ignores the ways that oil and gas and renewables can be used together
- **Direct energy produced is not an appropriate comparison.** Comparing renewable power generation to oil and gas as an "apples to apples" scenario ignores the issues associated with renewable energy's unreliable and intermittent production, the ease of storing fuel products and natural gas, and the valuable chemical products created from oil and natural gas.
- **Oceana's wind development scenario is unreasonable by several magnitudes.** The development scenario proposed by Oceana would require more than 50 times the current nameplate capacity of the entire offshore wind energy industry around the world[1], would be larger than any construction project ever attempted, would require more than 100 thousand 3.6 MW 90-meter wind turbines and would likely cost trillions of dollars. The largest currently operating wind farm took 2.25 years to build after the engineering and permitting phases were completed, cost

[1] Based on Oceana's stated 7GW global installed capacity and the 391 GW of nameplate capacity that would be required (under Oceana's stated conditions) in order to actually produce 143 GW and power 115 million homes

roughly \$2.9 billion and has a nameplate capacity of 0.6 GW, which would be 1/650th the size of Oceana's proposed development.

- **The wind development supply chain needed does not currently exist.** In order to build a wind power generation capacity as large as the one outlined in the Oceana study, an enormous supply chain would have to be built.
- **The East Coast electricity grid could not function under Oceana's scenario and timeline.** The difficulty of integrating significant offshore wind into the power grid was not a part of the Oceana analysis. Very little work has been done on the east coast to prepare for these power-grid related difficulties.
- **Construction jobs would drop significantly in Oceana's scenario.** Oceana's scenario would require a large build-up of highly skilled workers in the Atlantic states who would suddenly be out of work at the end of the 10-year construction period.
- **There is no economic analysis in the Oceana report.** Wind project economics were never addressed in Oceana's development plan.

A combination of the current energy sources with responsible, reliable and sustainable clean energy is already under way and will likely continue to grow as a share of power generation as advances in technology allow it. However, it is unlikely that there will be a situation where these energy sources can meet all of our energy needs in the near future, and they will never be able to meet all of the chemical needs which are currently satisfied by petroleum products. As the industry currently stands, in order to make renewable energy work, production sources need to be combined with power generation that can be easily turned on and off in order to cover the gaps of unpredictable energy generation by renewable energy resources.

In the full response below, we have covered all of these points in greater detail, with the relevant citations and quotes from Oceana's study included.

Detailed Response

In the energy industry some groups have a tendency to present the future of energy production as an "either or" situation. Many individuals and groups tend to think of a given energy source as the only possible solution to the future of energy production, while ignoring the realities of an expansive and dynamic industry. The integration of responsible, reliable and sustainable clean energy is an eventuality of the global energy industry as technology develops. However, it is unlikely that there will be a situation where these energy sources can meet all of our energy or chemical needs in the near future. Significant renewable energy production sources need to be paired with quickly adjustable power generation capacity which can meet the shortcomings of unpredictable energy generation by solar, wind and other renewable energy resources. Without these sources of energy, power grids could not meet consumers' energy needs when there is a lack of renewable energy generation, and would be seriously hampered by unpredictability even when energy was being produced. In addition, the products of oil and gas refining are integral parts of many industries as lubricants, components of plastics and medicines, cleaning products, cosmetics, and fertilizers in addition to many other roles beyond power generation. Many of these products and uses for refined petroleum products do not have consistent or affordable synthetic alternatives that could be produced without continued oil and gas production. Despite these shortcomings, Quest sees that renewable sources of energy are generally a positive for energy markets, which should continue to be invested in at a reasonable and economically sustainable level.

While Quest's study "The Economic Benefits of Increasing U.S. Access to Offshore Oil and Natural Gas Resources in the Atlantic"[2] exclusively focused on the benefits of opening the Atlantic Outer Continental Shelf (OCS) to oil and gas exploration and production, that in no way means that we do not support the development of renewable resources such as offshore wind at the same time. In fact, we support offshore wind development at a reasonable pace, under an "all of the above" approach to developing the extensive domestic energy resources of the United States.

In response to the recent report by Oceana "Offshore Energy by the Numbers "[3], we would like to clarify our methodology and provide context around the assumptions, scale and reality of the scenario proposed by Oceana as an alternative to expanded domestic oil and gas production. Specifically, we would like to speak to the statements made surrounding resource estimation, production volumes, job figure calculations, and the commercial viability of the resources that the studies address.

Defense of Quest Methodology

The depictions of the effects of increased access to the Atlantic OCS for oil and gas development in Oceana's "Offshore Energy by the Numbers" had some unfortunate mistakes in regard to our assumptions, modeling and methodology that present our work in an inaccurate way. First and most importantly, our development scheme was presented as being overly aggressive with reserve estimation[4], the portion of

[2] Quest (2013)
[3] Oceana (2015)
[4] Oceana "Offshore Energy by the Numbers" Pg.9 Par.1

those reserves which would be commercially viable[5] and the number of jobs that would be sustained by oil and gas production[6].

In addition to those mistakes there were also misunderstandings regarding the longevity of these offshore projects[7], the offshore regulatory environment[8], our language around any potential revenue sharing agreements between the federal and state governments[9], and the reasoning behind our distribution of jobs outside of just the coastal states[10].

Reserve Estimation

In calculating our total reserve numbers, we took several factors into account in order to get the most realistic estimate possible for the amount of oil and gas resources on the Atlantic OCS that may have been overlooked in previous surveys. The timeframe during which seismic surveys and exploratory drilling on the Atlantic coast were previously conducted and the scope of that work mean that we have an out-of-date and incomplete picture of the geologic conditions in the Atlantic.

Since exploration on the East Coast ceased in 1982, resource estimates in offshore areas around the world have rapidly increased in size as our ability to search for oil and gas resources has improved and our ability to produce reserves in deeper areas has developed. The most recent information available, which is the information provided by BOEM estimates, has been adjusted by the BOEM to match changes in the understanding of oil and gas geology[11], but fails to capture resources that were outside of the scope of the original seismic surveys and may not accurately capture the size of the resources in-place for the areas that we are aware of.

In order to use a more accurate resource estimate, we looked at the growth of regions around the world which had similar levels of development around 1980 from an exploration standpoint, and observed the changes in resource estimates for those areas as deepwater technology developed and exploration advanced beyond simple 2D seismic surveys. Of the areas that have seen similar deepwater development, many have grown in resource size by orders of magnitude. In picking the resource growth level of the Gulf of Mexico we picked a comparable scenario for reserve growth, which has been met or exceeded in some areas with similar geology to the Atlantic OCS, specifically the West African analogues of four of the Atlantic Coast's plays, which have seen significant increases in total resource base and average pool sizes, as laid out in the BOEM report mentioned below.

In line with Quest's upgrading of resource estimates for the Atlantic coast, the BOEM's own estimates of Atlantic coast resources were increased with the release of "Assessment of Undiscovered

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[5] Oceana "Methodology for Offshore Energy by the Numbers" Pg.1 Par.2
[6] Oceana "Methodology for Offshore Energy by the Numbers" Pg.2 Par.2
[7] Oceana "Methodology for Offshore Energy by the Numbers" Pg.15 Par.1
[8] Oceana "Methodology for Offshore Energy by the Numbers" Pg.13 Par.1
[9] Oceana "Offshore Energy by the Numbers" Pg.8 Par.4
[10] Oceana "Offshore Energy by the Numbers" Pg.3 Par.8
[11] BOEM (2014)

Technically Recoverable Oil and Gas Resources of the Atlantic Outer Continental Shelf, 2014 Update"[12], based on a greater understanding of the productivity of the geology of the region due to increased exploration of geologic analogues. Following the upward revision in reserve estimates last April, our multiplier now stands at 1.62 instead of the original 2.06. Although the true size of the resource base cannot be accurately determined without conducting seismic surveys as well as drilling, Quest believes that the size of the Atlantic's reserve base could be significantly larger than the estimations presented in our study, based on both the industry's continually advancing technology and the lack of information on the region.

The BOEM report lends some credibility to this statement through the upper bound of reserve estimates, which are larger than our technically recoverable reserve estimate by nearly 3 billion BOE. Quest firmly believes that it is not accurate or appropriate to call our resource multipliers "grossly inflated"[13] under any circumstance, based on the historical growth in reserves in other oil producing regions as well as the increasing understanding of geologic analogues to the Atlantic OCS geological and depositional conditions.

UTRR vs. UERR

A major theme of Oceana's commentary on our project development and production numbers was that we had not accounted for the differences between "technically recoverable reserves" and "economically recoverable reserves"[14]. While this would have been a major oversight in our study had we actually made the mistake, it is simply untrue. Quest conducted extensive modeling based off of USGS analog field data and field size distribution data to determine the size and spacing of different prospective oil and gas fields. Additionally, Quest modeled development costs of projects on internal data-driven models that have been constructed through years of experience in the industry.

Our models only allowed for production from those fields which were large enough to realistically be developed economically. This method ensured that our development levels were reasonable and realistic, and left a large majority of the available resources in the ground, despite what Oceana has suggested in their paper[15]. Through the 2035 period, Quest's study only "produced" 1.97 billion barrels of oil equivalent vs. 18.427 Billion BOE in Quest's expanded technically recoverable resource base and 11.4 billion BOE in the updated BOEM projections of technically recoverable resources[16]. While the total resource volume numbers were presented as the "technically recoverable reserves", Quest's models clearly do not treat these volumes as universally producible.

Job Numbers and the "Project Lifetime Jobs' Method

By recalculating Quest's study's employment projections using the "project lifetime jobs" method[17], the Oceana study does not properly portray the possible employment impact of offshore oil and gas

[12] BOEM (2014)
[13] Oceana "Offshore Energy by the Numbers" Pg.8 Par.4
[14] Oceana "Methodology for Offshore Energy by the Numbers" Pg.1 Par.2
[15] Oceana "Methodology for Offshore Energy by the Numbers" Pg.1 Par.2, Pg.8 Par.5
[16] Quest (2013), BOEM (2014)
[17] Oceana "Methodology for Offshore Energy by the Numbers" Pg.12 Par.6

development in the Atlantic OCS. Our employment figures, provided on a year to year basis, are the only reliable and realistic way to present job estimates. Oceana's methodology, by presenting the average jobs over the study period, fails to take into account the overall build in employment over time.

Averaging our jobs over 19 years (Oceana's incorrectly assumed project lifetime) ignores any jobs outside of our study period and deflates our numbers by including 10 years of low development levels into our average. To calculate the average jobs per year over the entire lifetime of production for the region would require including the entire timeline of the region's production from the first lease to the last decommissioning. Quest's study instead focused on a near to medium term timeline through 2035. Development is expected to continue decades past 2035; excluding years post 2035, when oil and gas development would have overcome the major hurdles involved with initial exploration in the region, grossly underestimates the average employment effect of the industry when viewed as an average.

This estimation method is in contrast to the calculation of the employment impacts of wind energy in the Atlantic OCS which used accelerated timelines[18]. Oceana did not remove operational jobs from the "lifetime jobs" calculation without providing oil and gas the same considerations[19] and improperly divided construction job impacts as addressed below.

State-to-State Comparisons

A related issue in the job number comparison is Oceana's decision to exclude the jobs in other non-coastal states when making their "state-to-state" comparisons[20]. In estimating our job numbers, we took a realistic approach to determining where jobs would be located based on the existing supply chain and a delay in developing the relevant industries in the states that would be producing oil and gas resources. This decision is based on the economic realities of developing a new industry in a frontier region. Instead, work that can be done outside of the immediate region would be done in regions with an existing manufacturing and experience base at first, while the capacity to handle fabrication and production work on the Atlantic coast developed and the industry matured.

From a US offshore oil and gas perspective this reasonably means that some of the employment impact associated with opening the Atlantic OCS would go to the Gulf of Mexico region initially. Fortunately, there are significant industries on the East coast that could be easily expanded in order to supply the oil and gas industry (i.e. steelworking, shipbuilding, engineering and design, onshore O&G exploration and production, significant refinery capacity, support vehicle fabrication and heavy manufacturing), so the effect will be less significant than in many other new areas of production. Quest took into account the existing offshore oil and gas supply chain when developing our forecasts and reduced our job forecasts for the coastal states accordingly.

[18] Oceana "Methodology for Offshore Energy by the Numbers" Pg.12 Par.4
[19] Oceana "Methodology for Offshore Energy by the Numbers" Pg.14 Par.4, Pg.13 Par.3
[20] Oceana "Offshore Energy by the Numbers" Pg.3 Par.8

Since the wind energy study did not include such assumptions and instead assumes all the employment impacts would be felt in the Atlantic coast states[21], the study's employment estimations are, in our opinion, artificially and significantly inflated for individual states. Therefore, their state-to-state comparison is unreliable. In addition to this effect, the benchmark turbines used in the study are German models, which would likely be fabricated outside of the United States for at least the first few years of the study period, if not the entirety of their proposed construction period.

Revenue Sharing

Another issue involving the effects in individual states is the revenue sharing agreement that was suggested in our study. While Oceana is correct in stating that there is no such revenue sharing agreement in place[22], and that the GOMESA structure includes a $500m yearly cap on state revenues from oil and gas activities[23], at no point in our study did we suggest that a revenue sharing program with Atlantic OCS states was in place . Our study clearly and repeatedly states that in order for these revenue sharing agreements to be relevant, the states themselves would have to push for these agreements in Congress. Since the GOMESA act is in place, the assumption that Atlantic OCS states may receive similar treatment is not unreasonable.

Regulatory Environment

Additionally, the report asserts that we did not include any assumptions or limits imposed by a realistic regulatory environment[24]. The same regulatory environment currently in place for current US offshore oil and gas production, primarily in the Gulf of Mexico, was built into the study inclusive of the leasing structure, drilling and production permitting and safety and environmental requirements.

Critique of Oceana Study Methodology

While our primary intent in this written response was clarifying the misunderstandings surrounding our previous work, we feel it is necessary to also point out several of the issues in Oceana's study methodology, which take away from the accuracy of comparisons between the studies. As mentioned above, approaching energy as an O&G vs. renewables situation takes away the ability of oil and gas to support a growing renewable portion of the energy mix and ignores the uses of oil and gas outside of energy generation, of which there are many.

Comparing O&G production to power generation is not an "apples to apples"[25] comparison of the energy and jobs that could be created by each of the industries. While oil can be, and natural gas frequently

[21] Oceana "Methodology for Offshore Energy by the Numbers" Pg.14 Par.2
[22] Oceana "Offshore Energy by the Numbers" Pg.2 Par.3
[23] Oceana "Offshore Energy by the Numbers" Pg.9 Par.2
[24] Oceana "Methodology for Offshore Energy by the Numbers" Pg.13 Par.1
[25] Oceana "Offshore Energy by the Numbers" Pg.2 Par.5

is used for power generation, both are easily stored, have additional uses, and have an existing infrastructure for their distribution and use. Wind energy, by comparison, would only be useful for power generation, is not storable at a reasonable cost, and does not have predictable or controllable output levels more than a few days in advance. Comparing the two as industries that have the exact same purpose and usefulness is not accurate, and only serves to hurt development of both energy sources by making people see them as competing interests. Beyond this disconnect, there are some significantly more important issues with Oceana’s analysis.

Global Wind Development Levels and US Wind Resources

To date, the nameplate capacity of offshore wind energy projects around the world is, according to Oceana, 7 GW[26]. This includes some very large projects offshore of Europe that have taken years to plan, fund, construct and integrate into the energy grid. The largest currently operating offshore windfarm in the world is the London array off the East coast of England, which has a capacity of 0.6 GW. This project cost about $2.9 billion and took 2.25 years to build after the engineering and planning were completed. This and other similar large projects offshore of Europe are expansive and costly projects which have blazed the trail for newer, larger and more efficiently produced wind installations. Despite this, costs are still exceptionally high, and the global capacity for offshore wind power is not expected to be a large portion of the energy mix anywhere in the near future.

An important characteristic of these windfarms is that they have been constructed in regions where there are significant public support structures in place for every aspect of the planning, permitting and funding of these large projects, as well as an energy grid that has been upgraded to accommodate variable power generation. Even with these advantages, development has been restricted and slow-moving due to the significant difficulties associated with offshore wind energy generation. Decades of development in regions with aggressively supportive public policy and a significant and reliable resource base have only led to 7 GW of nameplate capacity in the entire world, which would produce 2.56 GW under Oceana’s Study assumptions

When looking at the level of wind power generation potential described in the Atlantic wind study and comparing it to the development levels in these more mature regions, it seems strange that the United States would be having much difficulty in installing wind farms offshore of the Atlantic coast if, as described by the Oceana study, there is “conservatively” the potential to have 143 GW[27] of average (not nameplate) power generation installed through a “modest” and “gradual“ development scheme[28]. If the development levels were truly modest, this would have already been well underway.

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[26] Oceana “Offshore Energy by the Numbers” Pg.6 Par.5

[27] Oceana “Offshore Energy by the Numbers” Pg.3 Par.1

[28] Oceana “Offshore Energy by the Numbers” Pg.2 Par.4, Pg.3 Par.1, Pg.3 Par.10 et al.

In actuality, the market has not materialized due to the cost and difficulty of integrating offshore wind into the US power grid. There are active wind leases in the region and some projects in the planning stages, but most have been deemed non-commercial, or have been continually delayed. This points to some underlying problems with the current level of offshore wind technology and the ability of energy producers to capture wind energy that were not addressed in Oceana's development scheme.

Development Timelines

While it certainly seems true that the Atlantic OCS region has a level of potential wind energy similar to the totals given, what the wind study failed to describe was the true scale of development required to produce those resources. The papers that were frequently cited in the wind study themselves speak about realistic development scenarios in some depth, and none have anything remotely similar in scale to the studies estimates. In order to produce the 143 gW of average capacity described in the study, you would need more than 108,000 3.6mW 90m turbines installed under the conditions described in the study[29]. Since this is so much larger than the current number of installed or planned offshore wind developments worldwide, it would take years of extremely aggressive investment just to build up the needed supply chain in order to fabricate, plan for, move and install these wind projects.

Like offshore oil and gas projects, offshore wind projects require specialized vessels and other equipment for their construction and installation. While quite a few of these construction and support vessels do exist, the world's entire current fleet of these vessels is not large enough to install a fraction of the turbines required by the study. As an example of the unrealistic development timing used by the study, the largest previously built offshore wind project, the London Array mentioned previously, was 1/650th the scale of the proposed development level. The scale of this project would be larger than any construction project in history by several orders of magnitude, and would have a price tag to match. The amount of money that would be spent on this would amount to a noticeable portion of the country's gross domestic product for the entire development period, with comparatively small benefits.

Job Estimation

Despite the aggressive level of development proposed in the wind potential study and the calculation methods mentioned above which benefit the wind industry, the employment numbers are still not particularly spectacular given the level of development, timescale and associated costs. The vast majority of the jobs that would be related to this would be construction-related positions, which would last the length of the region's fabrication period. Our study took a steady, but lower level of employment over a longer period of time, as would likely be the case in developing either of the region's resources, which ensured a long-lasting employment base in the industries needed to support the production of the oil and gas resources. Oceana's estimation methodology required that all of the construction-related jobs would be at most 10 years in length, all in the same construction period[30]. If this construction timeline was even

[29] Oceana "Methodology for Offshore Energy by the Numbers" Pg.14 Par.3
[30] Oceana "Methodology for Offshore Energy by the Numbers" Pg.12 Par.4

possible, this would lead to a large build up on the East Coast of highly-skilled workers, who would abruptly be out of work at the end of the construction period.

This development timeframe also served to present employment at an unrealistically high level in the first few years of the study, which were then distributed throughout the period so as to not show the rapid employment decline suggested by the study's methodology.

On top of these issues, the actual calculation of jobs in the wind industry, when compared to the oil and gas estimates made by the wind study, were flawed and inconsistent. As mentioned above, the methodology for estimating wind jobs was:

> Project lifetime jobs per gigawatt of installed capacity = [(construction jobs * years of construction) / project lifetime] + operating jobs"[31]

While the methodology for oil and gas jobs was:

> Project lifetime jobs = [(Σ projected employment from 2017-2035) / project lifetime][32]

This method completely discounts the operating jobs associated with the oil and gas industry, which are not insignificant.

Project and Energy Industry Economics

While the wind study discussed the project economics of producing oil and gas reserves at length (mostly by stating that many of the reserves off of the Atlantic coast would not be produced)[33], the study failed to assess the commercial viability of the suggested wind projects and associated infrastructure upgrades that would be required to facilitate the large-scale addition of wind power into the power grid. The study also failed to mention the impact that it would have on existing power generation industries had this much energy come into the market, how they intended to distribute such a large amount of power throughout the country, or the investments in the needed complimentary energy storage or variable production power plants that would be required in order to make this plan work. Replacing more conventional power generation sources, though the new renewables may be cleaner, would only cannibalize existing American jobs in power plants across the country, while expanded oil and gas production allows us to reduce imports, keeping more jobs and money inside of the United States.

For wind power to even remotely come close to commerciality, it either has to have priority access to the electrical grid or be owned by the onshore utility providers and given preference whenever it is being produced. This would either mean that private industry would have to fund this enormous investment without any real promise of a return on their investment or ability to charge a premium for the energy, or

[31] Oceana "Methodology for Offshore Energy by the Numbers" Pg.14 Par.3

[32] Oceana "Methodology for Offshore Energy by the Numbers" Pg.13 Par.2-4

[33] Oceana "Offshore Energy by the Numbers" Pg.8 Par.3-4, "Methodology for Offshore Energy by the Numbers" Pg.1 Par.2

that the government may effectively have to nationalize energy production to exert the required control over the nation's power grid.

While the level of development presented in Oceana's study is entirely unreasonable, the goal of North American energy independence through a continued investment in both O&G production and renewable resources is not. Continuing to support both industries is in the best interest of our country both domestically and internationally and should be a priority of any legislative decision-making regarding our country's energy resources.

References

1. Quest Offshore Resources. "The Economic Benefits of Increasing U.S. Access to Offshore Oil and Natural Gas Resources in the Atlantic." Dec. 2013.
2. Menaquale, Andrew. Oceana. "OFFSHORE ENERGY BY THE NUMBERS." Jan. 2015.
3. Desselles, Richard. "Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Atlantic Outer Continental Shelf, 2014 Update." The Bureau of Ocean Energy Management, Apr. 2014.