ASSESSING DOMESTIC OFFSHORE ENERGY RESERVES AND ENSURING U.S. ENERGY DOMINANCE

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED EIGHTEENTH CONGRESS

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OVERSIGHT HEARING ON ASSESSING DOMESTIC OFFSHORE ENERGY RESERVES AND ENSURING U.S. ENERGY DOMINANCE

Wednesday, March 20, 2024
U.S. House of Representatives
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
Washington, DC

The Subcommittee met, pursuant to notice, at 2:22 p.m. in Room 1334, Longworth House Office Building, Hon. Garret Graves [Member of the Subcommittee] presiding.

Present: Representatives Graves, Tiffany, Rosendale, Duarte; Huffman, Mullin, Magaziner, and Velázquez.

Also present: Representative Carl.

Mr. GRAVES. The Subcommittee on Energy and Mineral Resources will come to order.

Without objection, the Chair is authorized to declare a recess of the Subcommittee at any time.

Under Committee Rule 4(f), any oral opening statements at the hearing are limited to the Chairman and Ranking Minority Member.

I ask unanimous consent the gentleman from Alabama, Mr. Carl, be allowed to participate in today's hearing.

Without objection, so ordered.

And I now recognize myself for an opening statement.

STATEMENT OF THE HON. GARRET GRAVES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF LOUISIANA

Mr. GRAVES. Good afternoon. I appreciate all the witnesses being here. We are going to be talking today about assessing domestic offshore energy reserves and ensuring U.S. energy dominance.

It is no secret that just a few years ago, the United States was effectively energy independent and well on our path toward energy dominance. We have seen a significant shift in energy policy over the last few years that has eroded that superiority, independence, and dominance, that has resulted in giving additional ground to countries like Russia, Iran, Venezuela, and others that don't share America's values.

Much of the shift that we have seen in energy policy under this Administration has been under the auspices of actually reducing emissions, efforts to advance climate change initiatives to, as you have heard, promote this energy transition, where the reality is that energy emissions under the Biden administration have actually increased, whereas under the previous administration they went down.

And I will say that again: Despite the efforts and the description of what is happening, and the impetus, the justification for changes

in energy policy, we have seen emissions go up under the Biden administration, whereas they went down under the Trump administration.

Let's look at other criteria to determine if this Administration's energy policies have been successful. When President Biden took office, in my home state of Louisiana, gasoline prices were $1.74 a gallon, $1.74. Being home this weekend, I think $2.90 was the cheapest that I saw. And we are all aware that right now gasoline prices are trending upward.

We have also seen utility prices rise. This is having the biggest impact on those who can least afford it, to where families are literally having to choose among things like groceries, health care, utility costs, filling up their car, and other what I would call false choices. This is a direct result of flawed energy policies out of this Administration.

Another factor is energy security. Have these policies promoted or advanced America's energy security? The answer is no. We have carried out policies that have helped countries like Russia, Iran, Venezuela, and to a different degree, China, actually fill the void that is being created by U.S. energy policy. Let me give a few examples.

I have gone back and looked at energy leasing for onshore and offshore energy development in the United States. If you compared what has been leased under the Biden administration, for example, to the Reagan administration, you had 357 times, 357 times, the acreage for energy production leased under the Ronald Reagan administration than you have had under the Biden administration.

Let's take a look at perhaps other Democrat Members of Congress. Even under the Jimmy Carter administration, you had 100 times more acres of lands and waters leased than you have had under this Administration.

I would like to remind my friends, I don't think I have ever heard anyone in my life say, "Please bring back the Jimmy Carter energy policy," ever. Yet, at this point that looks much more attractive than what we are seeing right now.

I will say one of the best opportunities that we have in the United States is the offshore. And I am very sensitive to the United States trying to continue a downward trend in emissions. And the reality is that our energy production in the United States is, on average, about 23 percent more efficient, or said another way, less carbon intensive, than the international average. In fact, offshore, what we are going to be discussing today, is one of the least carbon-intense sources of oil and gas in the world.

Now, if we simply take data like, for example, the Energy Information Agency's data showing that oil and gas demand globally is going to be increasing, increasing over the next few decades, it is baffling to me, baffling to me why we would actually stop or shut down energy sources that are the most efficient in the world, or some of the most efficient in the world. It simply is nonsensical.

Another policy out of this Administration was the LNG, what they are referring to as a pause. Just to put things in perspective, if we had simply taken one year, one year of Russian gas that was being supplied to the European Union and replaced it, supplanted

it with LNG, with liquefied natural gas coming out of the United States, it would have reduced emissions globally to the tune of 218 million tons. That is for one year of supplanting Vladimir Putin's gas with American LNG. And that number blows away anything that my good friend from California and others have proposed in regard to emissions reduction, but it is just one example.

I look forward to hearing from our witnesses today to where we can learn more about opportunities that are before us to truly unleash America's energy economy, energy opportunities, while continuing to improve energy security, affordability, as well as reducing emissions.

With that, I yield back, and I recognize my friend from California, Mr. Huffman, for an opening statement.

STATEMENT OF THE HON. JARED HUFFMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HUFFMAN. Thank you, Mr. Chairman. I am going to be pinch hitting for Ranking Member Ocasio-Cortez today.

And it is always interesting to hear my friend from Louisiana take us through the looking glass of the fossil fuel industry, where things like liquefied natural gas exports that we now know, the more we look, are huge net emitters, they are part of the climate crisis in a big way, but they are described as emission reduction strategies. So, it is always an adventure, a factual adventure, at least, when we talk about these things here in the Committee.

Now, we are going to be talking about offshore oil and gas in this hearing. I guess it is about the sixth time in this Congress that we have had this conversation. Meanwhile, right now on the House Floor, Republicans are holding so-called Energy Week, rehashing their tired polluters-over-people agenda once again, instead of taking on the urgent problems facing our nation like transparently funding our government. That stuff is really hard for Team Extreme, so we do the performative cheerleading for the fossil fuel industry.

The clock is ticking on another Republican-created crisis, but the priority is to check more bills off Big Oil's wish list. So, here we are, this hearing.

Long-term planning for our energy security is important, but fossil fuels are not and cannot be the only solution. As many of us have said over and over again, when we talk about energy security we need to clarify: security for who?

The focus needs to be on our most vulnerable communities, not Big Oil's profits. And they are rolling in profits, and the world is awash in their fossil fuel right now. What is best for the fossil fuel industry is not what is best for Americans. U.S. oil and gas production and profits are at an all-time high, but communities are facing high prices at the pump, skyrocketing utility bills, constant climate disasters. It is clear that Big Oil's so-called dominance isn't so good for regular folks out there in America. Coastal communities closest to where this oil is extracted are overburdened with pollution, erosion from pipelines, processing, and other industrial facilities.

The oil and gas workforce is facing an increasingly volatile job market. The industry is laying off more and more workers, having

learned how to do more with fewer people, making the remaining jobs more and more dangerous.

While Big Oil plans to drill for decades to come, it is only planning for its own profits. A new report by the non-partisan government watchdog, the GAO, found that the industry is shirking important but expensive decommissioning responsibilities at the end of its offshore operations, and instead of cleaning up and taking down their infrastructure when they are done using it, as they are required to do, they have left over 2,700 wells and 500 platforms to corrode in the Gulf past their decommissioning deadlines.

And Mr. Graves and I will have a conversation about rigs to reefs. I believe there may be some situations where that makes some sense. I don't want to be too categorical about it, but to give a complete pass and liability relief and everything else to the fossil fuel industry is just another huge giveaway to folks who don't need it.

So, when Big Oil walks away from its responsibilities, American taxpayers could be left holding the ballooning of the debt and the ballooning billion-dollar bill. The GAO found that the Department of the Interior only holds about $3.5 billion in supplemental bonds for offshore oil and gas infrastructure, but the total estimated costs are 10 to 20 times that, up to $70 billion. This is an unacceptable liability.

So, today's focus on oil and gas resource assessment and energy security, air quotes around that, doesn't address any of the costs the public pays so that Big Oil can continue to profit from the increasing frequency of billion-dollar climate disasters to the $70 billion in decommissioning liabilities waiting to be cleaned up off the ocean floor.

Democrats support using the best available science to guide our policies. I would like to enter for the record that the best available science says that we need to leave most oil and gas reserves in the ground to keep global warming below 1.5 degrees Celsius, and to contain the worst of the climate crisis. With unanimous consent, I would like to ask that this Nature magazine paper be entered into the record.

Mr. ROSENDALE [presiding]. Without objection.

Mr. HUFFMAN. Thank you.

[The information follows:]

Submission for the Record by Rep. Huffman

Article

Unextractable fossil fuels in a 1.5 °C world

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Check for updates

Dan Welsby[1] ✉, James Price[2], Steve Pye[2] & Paul Ekins[1]

Parties to the 2015 Paris Agreement pledged to limit global warming to well below 2 °C and to pursue efforts to limit the temperature increase to 1.5 °C relative to pre-industrial times[1]. However, fossil fuels continue to dominate the global energy system and a sharp decline in their use must be realized to keep the temperature increase below 1.5 °C (refs. [2–7]). Here we use a global energy systems model[8] to assess the amount of fossil fuels that would need to be left in the ground, regionally and globally, to allow for a 50 per cent probability of limiting warming to 1.5 °C. By 2050, we find that nearly 60 per cent of oil and fossil methane gas, and 90 per cent of coal must remain unextracted to keep within a 1.5 °C carbon budget. This is a large increase in the unextractable estimates for a 2 °C carbon budget[9], particularly for oil, for which an additional 25 per cent of reserves must remain unextracted. Furthermore, we estimate that oil and gas production must decline globally by 3 per cent each year until 2050. This implies that most regions must reach peak production now or during the next decade, rendering many operational and planned fossil fuel projects unviable. We probably present an underestimate of the production changes required, because a greater than 50 per cent probability of limiting warming to 1.5 °C requires more carbon to stay in the ground and because of uncertainties around the timely deployment of negative emission technologies at scale.

In 2015, McGlade and Ekins[9] set out the limits to fossil fuel extraction under stringent climate targets. They estimated that one-third of oil reserves, almost half of fossil methane gas reserves and over 80% of current coal reserves should remain in the ground in 2050 to limit warming to 2 °C. They also highlighted that some countries would need to leave much higher proportions of fossil fuel reserves in the ground than others. Since 2015, the Paris Agreement and the Intergovernmental Panel on Climate Change (IPCC) have helped to refocus the debate on warming limits of 1.5 °C (refs. [1,10]). Multiple scenarios have been published, showing the additional effort required to limit global CO_2 emissions to net zero by around 2050 to meet this target[11]. In this Article, we extend the earlier 2015 work to estimate the levels of unextractable fossil fuel reserves out to 2100 under a 1.5 °C scenario (50% probability), using a 2018–2100 carbon budget of 580 $GtCO_2$ (ref. [3]). We also provide insights into the required decline of fossil fuel production at a regional level, which will necessitate a range of policy interventions. We define unextractable fossil fuels as the volumes that need to stay in the ground, regardless of end use (that is, combusted or non-combusted), to keep within our 1.5 °C carbon budget.

Paris Agreement-compliant fossil fuel prospects

Fossil fuels continue to dominate the global energy system, accounting for 81% of primary energy demand[12]. After decades of growth, their rate of production and use will need to reverse and decline rapidly to meet internationally agreed climate goals. There are some promising signs, with global coal production peaking in 2013, and oil output estimated to have peaked in 2019 or be nearing peak demand, even by some industry commentators[13].

The plateauing of production and subsequent decline will mean that large amounts of fossil fuel reserves, prospects that are seen today as economic, will never be extracted. This has important implications for producers who may be banking on monetizing those reserves in the future, and current and prospective investors. Investments made today in fossil fuel energy therefore risk being stranded[14]. However, there continues to be a disconnect between the production outlook of different countries and corporate entities and the necessary pathway to limit average temperature increases[2].

A number of analyses have explored how fossil fuels fit into an energy system under a 1.5 °C target. The IPCC's *Special Report on Global Warming of 1.5 °C* estimates coal use only representing 1–7% of primary energy use in 2050, while oil and fossil methane gas see declines relative to 2020 levels by 39–77% and 13–62%, respectively[3]. Despite strong declines, the use of fossil fuels continues at lower levels, reflecting the assumed inertia in the system and continued use of fossil fuels in hard-to-mitigate sectors. Luderer et al.[4] estimate that, despite large-scale efforts, CO_2 emissions from fossil fuels will probably exceed the 1.5 °C carbon budget and require high levels of carbon dioxide removals (CDR). Grubler et al.[5] explored efforts to reduce energy demand, substantially reducing the role of fossil fuels and removing the need for CDR deployment.

The extent of fossil fuel decline in the coming decades remains uncertain, influenced by factors such as the rapidity of the rollout of clean technologies and decisions about the retirement of (and new investment in) fossil fuel infrastructure. Indeed, while dependent on lifetimes and operating patterns, existing fossil fuel infrastructure already places a 1.5 °C target at risk owing to implied 'committed' future CO_2 emissions[6]. The possible extent of CDR further complicates this

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The full document is available for viewing at:

https://docs.house.gov/meetings/II/II06/20240320/116958/HHRG-118-II06-20240320-SD007.pdf

Mr. HUFFMAN. If we are going to discuss domestic offshore energy reserves, we should also be talking about one of our largest, most untapped energy sources: offshore wind. This has a technical potential of roughly double the country's current electric generating capacity, and could provide 90 percent of our nation's electricity needs by 2050. But it is not on the agenda today.

Offshore wind promises true energy security, reliable, low-cost, clean energy delivered to American homes, not shipped abroad to pat executives' pockets. It is time that we pursue an energy future that puts people over polluters.

With that, I yield back, Mr. Chairman.

Mr. ROSENDALE. Thank you, Ranking Member, for your statement. We will now introduce our panel of witnesses.

Let me remind the witnesses that under Committee Rules, they must limit their oral statements to 5 minutes, but their entire statement will appear in the hearing record.

To begin your testimony, please press the "talk" button on your microphone.

We will use timing lights. When you begin, the light will turn green. When you have 1 minute remaining, the light will turn yellow. And at the end of 5 minutes, the light will turn red, and I will ask you to please complete your statement.

I will also allow all witnesses to testify before Member questioning begins.

Our first witness is Dr. Walter Cruickshank, and he is the Deputy Director for the Bureau of Ocean Energy Management in the Department of the Interior, and is stationed here in Washington, DC.

Dr. Cruickshank, you are now recognized for 5 minutes.

STATEMENT OF WALTER CRUICKSHANK, DEPUTY DIRECTOR, BUREAU OF OCEAN ENERGY MANAGEMENT, WASHINGTON, DC

Dr. CRUICKSHANK. Thank you, Mr. Chairman and Representative Huffman. I am pleased to appear before you today to discuss the Bureau of Ocean Energy Management's ongoing responsibility to assess oil and natural gas resources on the nation's Outer Continental Shelf.

Resource evaluation has been carried out by geologists, statisticians, and economists for decades to offer insights into petroleum supply. The resulting estimates provide critical input to decision makers and inform various policy alternatives.

Section 357 of the Energy Policy Act of 2005 directs the Secretary of the Interior to conduct an inventory and analysis of oil and natural gas resources contained within the submerged lands of the Outer Continental Shelf. The Secretary is required to submit this analysis to Congress every 5 years. As directed by that statute, BOEM prepared and delivered the Comprehensive Inventory of OCS Oil and Natural Gas Resources 2023 update to Congress on January 17 of this year.

BOEM also publishes a formal national assessment of undiscovered, technically-recoverable resources and undiscovered, economically-recoverable resources every 5 years. These national assessments inform the comprehensive inventory reports to Congress. The undiscovered, technically-recoverable resources are

estimates of oil and gas that could be produced from the subsurface using conventional extraction techniques. Undiscovered, economically-recoverable resources are the subset of the technically-recoverable resources that are assessed to be commercially recoverable under particular economic and technological conditions.

BOEM's most recent National Assessment of Undiscovered Resources was finalized in 2021, and work is underway to prepare the 2026 National Assessment. In developing these assessments, BOEM considers recent geophysical, geological, and technological information to estimate potentially recoverable oil and gas resources. This information comes from multiple sources, including wellbore data from the OCS, geophysical data, and geologic play information from domestic and global analogs. Economic parameters such as exploration and development costs and oil and gas prices are also factored into the assessment.

Since 1975, the Department of the Interior has completed 11 National Assessments of OCS Undiscovered Oil and Natural Gas Resources. During this period, geological and geophysical information available to BOEM has dramatically increased, and industry's technological capabilities have expanded considerably. Today, the oil and gas industry has the ability to drill both exploration and production wells in water depths exceeding 10,000 feet, and the use of three-dimensional and other advanced seismic data and interpretation techniques has served as a catalyst to transform the geosciences and petroleum industry by providing more accurate subsurface imaging. Resource assessment techniques have also become more sophisticated over time.

Each National Assessment reflects a snapshot in time that should not be reviewed as either an understatement or overstatement when compared to later assessments that will reflect additional information, changed circumstances, and a better understanding of the OCS subsurface.

The 2021 National Assessment contains BOEM's most recent oil and gas resource estimates, and served as a key input to the 2023 Congressional Report. Compared to the 2018 report, BOEM's estimate for undiscovered, technically-recoverable oil resources decreased by 23 percent, and the estimate of undiscovered, technically-recoverable gas resources decreased by 30 percent. The overall decrease reflects recent exploration results, and is due in part to improvements in BOEM's assessment practices.

These advances have allowed BOEM to generate a clearer picture of the OCS subsurface geology, particularly in the Gulf of Mexico. As a result, BOEM refined the number and size of oil and gas prospects within the assessment, resulting in decreases in resource estimates.

BOEM's National Assessment is one of a number of information sources used by policymakers for program planning, and to consider energy policy options. A primary example of this is the development of the National OCS Oil and Gas Leasing Program. Under the OCS Lands Act, the Secretary of the Interior is responsible for establishing a schedule of oil and gas lease sales for a 5-year period by evaluating specified attributes of OCS areas, including the potential for discovery of oil and gas, which the Secretary must

balance, to the maximum extent practicable, with the potential for environmental damage and adverse impact on the coastal zone.

Thank you again for the opportunity to be here today to discuss BOEM's efforts to responsibly manage our nation's energy resources on the OCS to meet the nation's energy needs while minimizing impacts to the ocean, ocean users, and marine life. And I look forward to answering any questions the Committee may have.

[The prepared statement of Dr. Cruickshank follows:]

PREPARED STATEMENT OF DR. WALTER D. CRUICKSHANK, DEPUTY DIRECTOR, BUREAU OF OCEAN ENERGY MANAGEMENT, U.S. DEPARTMENT OF THE INTERIOR

Chairman Stauber, Ranking Member Ocasio-Cortez, and members of the Subcommittee, I am pleased to appear before you today to discuss the Bureau of Ocean Energy Management's ongoing responsibility to assess existing oil and natural gas resources on the Outer Continental Shelf (OCS). My name is Walter Cruickshank, and I am the Deputy Director of BOEM, a bureau within the Department of the Interior (DOI).

Comprehensive Inventory of U.S. Outer Continental Shelf Oil and Natural Gas Resources

Resource evaluations have been carried out by geologists, statisticians, and economists for decades to offer insights into petroleum supply. To tackle the challenge, increasingly complex quantitative techniques and procedures have been developed in response to the needs and uses for these assessments. Resource estimates provide critical input to decision-makers and inform various policy alternatives.

Section 357 of the Energy Policy Act of 2005 (EPAct) directs the Secretary of the Interior to conduct an inventory and analysis of oil and natural gas resources contained within the submerged lands of the U.S. OCS. The Secretary is required to submit this analysis to Congress every 5 years.

The statute mandates that the inventory and report meet the following criteria:

1. incorporate available data on oil and natural gas resources in areas offshore of Mexico and Canada that are relevant to estimate the resource potential of the OCS;
2. use any available technology except drilling to obtain accurate resource estimates;
3. analyze how OCS resource estimates have changed over time in relation to available data and exploration and development activities;
4. estimate the effect of understated oil and natural gas resource estimates on domestic energy investments; and
5. identify and explain how legislative, regulatory, and administrative programs or processes restrict or impede resource development and affect domestic supply.

As directed by the statute, BOEM prepared and delivered *The Comprehensive Inventory of OCS Oil and Natural Gas Resources: 2023 Update* (Comprehensive Inventory Report) to Congress on January 17, 2024. The Comprehensive Inventory Report covered the years 2018 to 2023.

National Assessment of Undiscovered Technically Recoverable Resources and Undiscovered Economically Recoverable Resources

BOEM publishes a formal national assessment of Undiscovered Technically Recoverable Resources (UTRR) and Undiscovered Economically Recoverable Resources (UERR) every 5 years. These National Assessments inform the Comprehensive Inventory Reports to Congress. UTRR are estimates of oil and gas resources that could be produced from the subsurface using conventional extraction techniques. UERR are a subset of UTRR that are assessed to be commercially recoverable under particular economic and technologic conditions.

BOEM's most recent National Assessment of undiscovered resources was finalized in 2021. The National Assessment is a component of energy policy analysis and provides important information about the potential of oil and gas resources on the OCS. Work is underway to prepare for the 2026 National Assessment.

In developing the National Assessment, BOEM considers recent geophysical, geological, and technological information to estimate potentially recoverable oil and gas resources. This information comes from multiple sources, including OCS operator subsurface geologic and wellbore data, OCS geophysical and seismic data, and geologic play information from domestic and global analogs. Economic parameters, such as exploration and development costs and oil and gas prices, are also factored into the assessment.

Improved Technology and Methodology

The 2023 Comprehensive Inventory Report assesses only technically recoverable hydrocarbon resources, both discovered and undiscovered. The interplay of technological advancement and changing economic conditions has an important role in assessing discovered and undiscovered technically recoverable resources, as well as the extent of the commercial frontier of hydrocarbon resources.

Since 1975, DOI has completed 11 National Assessments of OCS undiscovered oil and natural gas resources. During this period, the geological and geophysical information available to BOEM assessors has dramatically increased. These data have increased BOEM's knowledge regarding OCS resource potential, particularly in the more mature areas of the central and western Gulf of Mexico.

Over the period that the National Assessments have been conducted, industry's technological capabilities expanded considerably. Today, the oil and gas industry possesses the ability to drill both exploration and production wells in water depths exceeding 10,000 feet. The use of three-dimensional (3-D) and other advanced seismic data and interpretation techniques has served as a catalyst to transform the geosciences and the petroleum industry by providing more accurate subsurface imaging. Resource assessment techniques have also become more sophisticated during this period.

Each National Assessment reflects a snapshot in time that should not be viewed as either understated or overstated when compared to later assessments that will reflect additional information, changed circumstances, and a better understanding of the OCS subsurface.

2023 Comprehensive Inventory Report Findings

The 2021 National Assessment contains BOEM's most recent oil and gas resource estimates and served as a key input to the 2023 Comprehensive Inventory Report. Compared to the 2018 Comprehensive Inventory Report, BOEM's estimate for undiscovered technically recoverable OCS oil resources has decreased more than 23%, and the volume estimate of undiscovered technically recoverable gas resources decreased 30%.

The overall decrease reflects recent exploration results and is due, in part, to improvements in BOEM's assessment practices, as well as advances in technological capabilities for resource assessment, which continue to align with industry standards. These advances have allowed BOEM to generate a clearer picture of the OCS subsurface geology, particularly in the Gulf of Mexico region. As a result, BOEM refined the number and size of oil and gas prospects within the 2021 National Assessment, resulting in decreases of UTRR and UERR estimates.

Informing Decisions

BOEM's National Assessment is one of a number of information sources used by policymakers for program planning and considering energy policy options. A primary example is the development of the National OCS Oil and Gas Leasing Program (National OCS Program). Under Section 18 of the OCS Lands Act, the Secretary of the Interior is responsible for establishing a schedule of oil and gas lease sales for a five-year period by evaluating specified attributes of OCS areas. The Secretary is authorized to select the size, timing, and location of proposed OCS lease sales that best meet national energy needs while balancing, to the maximum extent practicable, the potential for environmental damage, discovery of oil and gas, and adverse impact on the coastal zone.

Conclusion

Thank you again for the opportunity to be here today to discuss BOEM's efforts to responsibly manage our nation's energy resources on the OCS to meet the Nation's energy needs while minimizing impacts to the ocean, ocean users, and marine life. BOEM's programs are essential for the Administration's continued commitment to ensuring a clean and secure energy future—one that is sustainable and benefits all Americans. I look forward to answering any questions that this Committee may have.

Mr. ROSENDALE. Thank you very much. I appreciate your testimony.

Our next witness is Dr. Amir Zaman. He is the Partner and Commercial Director of the Americas for Rystad Energy, and he is stationed in New York, New York.

Mr. Zaman, you are now recognized for 5 minutes.

STATEMENT OF AMIR ZAMAN, PARTNER AND COMMERCIAL DIRECTOR, AMERICAS, RYSTAD ENERGY, NEW YORK, NEW YORK

Mr. ZAMAN. Thank you very much, Chairman, and thank you very much to the Committee for having Rystad join today.

The United States is a world leader in hydrocarbon reserves, demonstrating substantial untapped potential in our offshore waters and shale plays. The nation ranks second in oil and first in gas reserves globally, with significant contributions from both conventional and unconventional shale resources that have reshaped the energy landscape the past two decades.

The growth of U.S. oil production since 2010 has played a crucial role in balancing the global oil and gas market. The shale revolution has been the primary driver, with the Permian Basin leading the surge. However, deepwater supply has also achieved very positive additions year over year in the past decade.

Despite challenges, including headwinds that we potentially see developing in exploration and development offshore, offshore remains a key contributor to the oil and gas supply. However, while the growth and resiliency that has been demonstrated by the U.S. oil and gas sector during recent downcycles and the COVID pandemic have been impressive, with the country setting a new record for total production to close out 2023, there are reasons to be wary about how long we can continue on this current path, in particular given that the market is so heavily weighted towards the shale market, which is facing headwinds of its own.

Natural engineering characteristics to producing hydrocarbons from shale formations leads itself to requiring a much larger number of wells to be drilled than conventional and offshore fields. As a result, the number of potential wells that can be drilled in the future shrinks every single day. And this drilling inventory is what we are going to talk about for a second now.

There are estimates that can range from company to company, from shale play to shale play anywhere from as small as 2 to 3 years' worth of drilling locations left to upwards of potentially the mid-teens or maybe 20 years. But even that number is very nuanced, and will require some digging into to fully understand the grasp of what will happen if and when or when the shale patch will begin to see its downside.

Regardless of what number applies, the second that that saturation point for wells becomes apparent, we will start to see a decline in production in the United States. And that will reverse a lot of the progress that we have made in energy security throughout this revolution.

But there is a way to help and, if you will allow me a slight pun, we can stem the tide a bit by looking to our coasts. The offshore United States presents an attractive investment opportunity for

exploration and production companies, characterized by competitive break-even prices and favorable fiscal terms. Stability and profitability offered by the U.S. fiscal regime makes it an appealing destination for global players seeking long-term investment opportunities, and is evidenced by the sheer number of companies who are active in the Gulf versus other places in the world.

As mentioned previously, the U.S. oil and gas industry has one of the lowest upstream emission rankings in the world. And of particular note, given today's topic, it is worth noting that the nation's offshore sector comes out on top in emissions intensity from production of hydrocarbons versus every other country, according to Rystad Energy's Research. The only one that comes close is Norway, and in a virtual dead heat. We can talk a little bit more about some of the rankings of the United States versus other countries throughout today's session.

However, one thing that is not talked enough about when we talk about emissions is how much emissions are related to the shipment of hydrocarbons from one location to another. I would position that the amount of atmospheric gases that we are putting into the atmosphere, plus the amount of fuel that is burned to ship hydrocarbons from other parts of the world versus using pipelines that exist here in the Gulf and other parts of the United States is very significant.

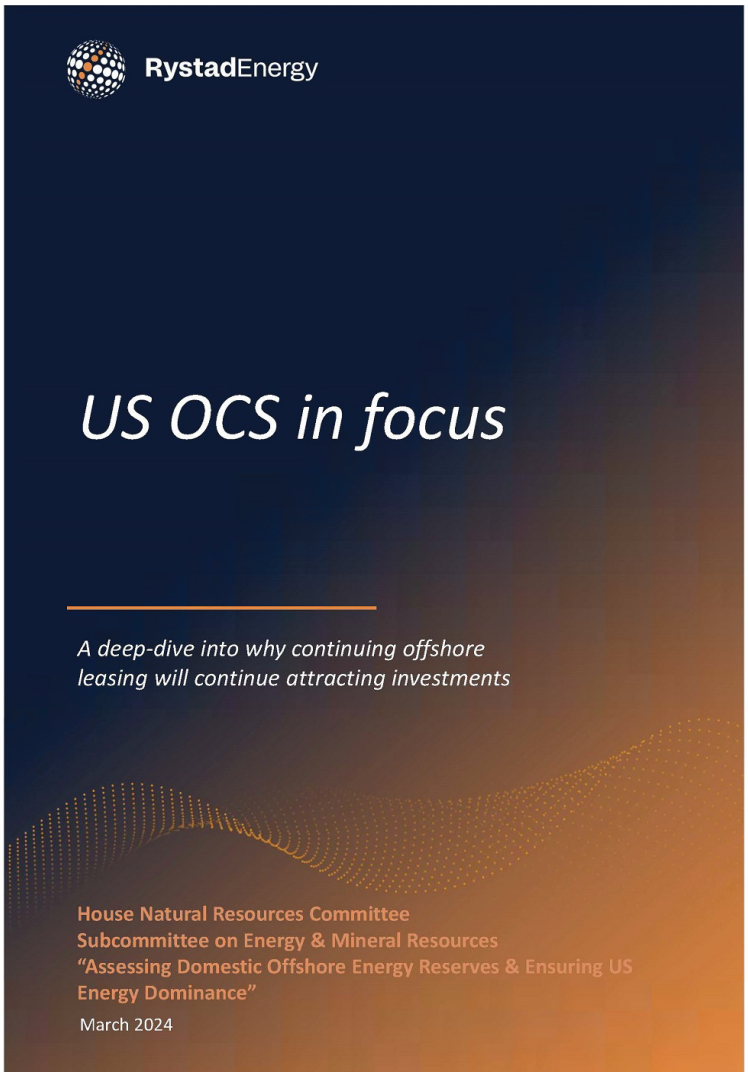
While past decades have seen significant offshore discoveries, recent trends indicate a decline in yearly discovered volumes, posing challenges for future production growth offshore. Renewed exploration efforts and timely awards are crucial to unlocking undiscovered potential and sustaining production levels where they are today, around 2.5 million barrels of oil equivalent, let alone potentially needing to grow significantly more to offset the future potential losses in shale.

As older vintages of licenses contribute to a substantial portion of the current offshore supply, the future growth trajectory hinges on successful exploration and development activities. The technical work and safety planning around developing offshore oil and gas fields is significant, making it a long cycle undertaking where it could take 3, 7, or even more than 10 years in some cases from the time a license is awarded to first production. And with this timeline in mind, should the United States seek to ensure it is producing a requisite level of hydrocarbons from its prolific and prospective offshore regions alike, immediate action would be needed to address declining discovery rates, beginning with the licensing process.

Thank you very much.

[The prepared statement of Mr. Zaman follows:]

PREPARED STATEMENT OF AMIR ZAMAN, PARTNER & COMMERCIAL DIRECTOR, RYSTAD ENERGY



Executive Summary

This report offers a detailed examination of the United States' resources, the significance of the offshore oil and gas sector, encompassing reserves, production trends, exploration activities, and investment prospects.

The United States leads in total hydrocarbon reserves with approximately 596 billion barrels, demonstrating substantial untapped potential, particularly in shale plays and offshore reserves. The nation ranks second in oil and first in gas reserves globally, with significant contributions from both conventional and unconventional sources.

The growth of US oil production, especially since 2010, has played a crucial role in balancing global oil markets. The shale revolution has been the primary driver, with the Permian Basin leading the surge in oil supply. However, deepwater supply has also seen positive additions year-over-year for the past decade. Despite challenges, including deepwater exploration and development, offshore US remains a key contributor to the overall oil and gas supply.

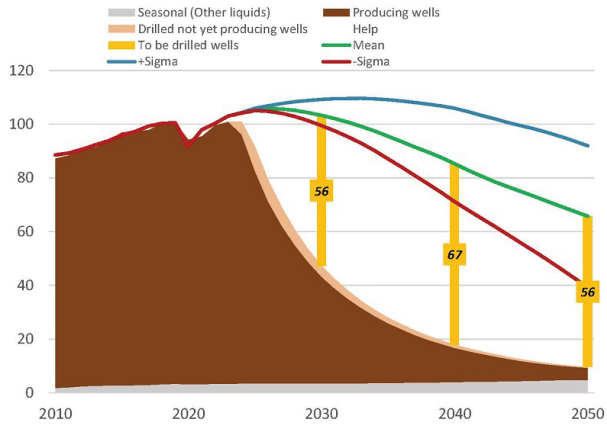
The offshore US presents an attractive investment opportunity for exploration and production companies, characterized by competitive breakeven prices and favourable fiscal terms. The stability and profitability offered by the US fiscal regime make it an appealing destination for global players seeking long-term investment opportunities. The country's offshore sector even comes out on top from an emission intensity standpoint.

While past decades have seen significant offshore discoveries, recent trends indicate a decline in yearly discovered volumes, posing challenges for future production growth. Renewed exploration efforts and timely awards are crucial to unlocking undiscovered potential and sustaining production levels above the 2-2.5 million boe per day mark.

As older vintages contribute a substantial portion of current offshore supply, the future growth trajectory hinges on successful exploration and development activities. Immediate action is needed to address declining discovery trends and ensure the sustained growth of US offshore production.

56 million bpd of oil supply expected to come from new wells in 2030

Global liquids demand vs. supply (Million barrels per day)



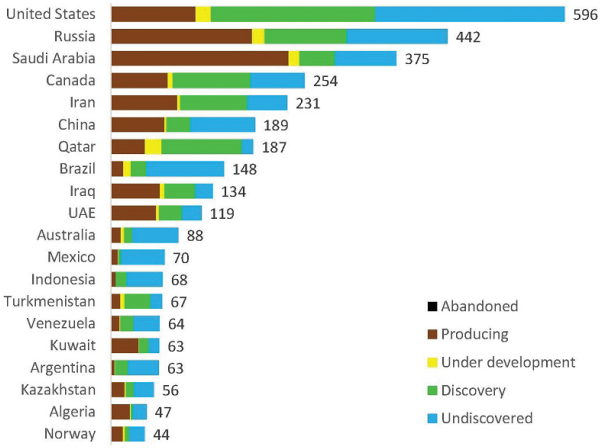
The chart illustrates the global liquids demand scenarios and compares those against the available supply. The three demand scenarios include the Sigma+, the Sigma- and the Mean scenario. Rystad Energy builds its demand scenarios bottoms-up. We make various assumptions when it comes to EV adoption rates, rates for electrification of trucks, plastic recycling, penetration of sustainable aviation fuel, oil displacements in maritime etc. Based on the outcome of these assumptions, we generate demand curves, which correspond to several giga tonnes of emissions. The mean case results into an overall increase of global average temperature rise of 1.9-degrees Celsius by 2100 vs. pre-industrial levels. Similarly, the Sigma+ scenario corresponds to a temperature increase of 2.2-degrees while Sigma- corresponds to a temperature increase of 1.6-degrees.

While compared against supply from currently producing wells, and drilled uncompleted wells, we note that by 2030, we would need around 56 million bpd of supply to be met by wells that have not yet been drilled. These could be shale wells, deepwater wells, wells in OPEC nations etc. Nevertheless, the underpinning message is that the upstream industry would need to continue investing in oil and gas to meet demand.

Source: Rystad Energy UCube March 2024

US holds the highest resource potential in the world

Ranking Top 20 Countries by Technically Recoverable Resources (Billion boe)



The chart provides a comprehensive overview of oil and gas reserves across various countries, distributing them into distinct stages: Abandoned, Producing, Under Development, Discovery, and Undiscovered.

At the forefront is the United States, boasting a total of approximately 596 billion barrels. With nearly 80% of its vast resources still awaiting exploitation, the US remains poised to maintain its position as a dominant global hydrocarbon producer.

In terms of oil and gas, the US ranks second in oil and first in gas reserves. While the nation's renowned shale plays have been instrumental in its ascendancy, significant offshore reserves also contribute substantially. According to Rystad Energy, the US offshore region is estimated to harbour close to 15% of the nation's resources.

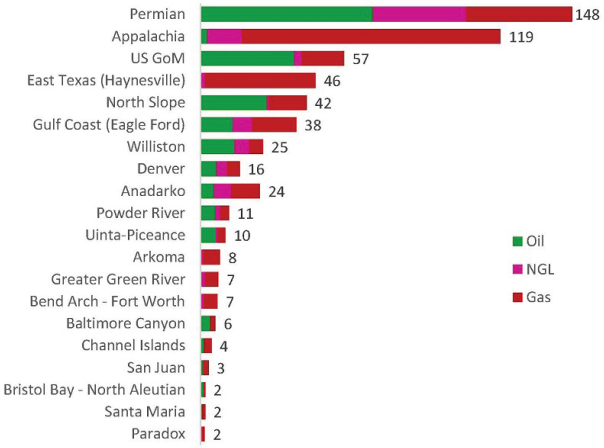
The shale revolution has propelled the US from a net oil importer to a net exporter in recent years. Additionally, the substantial gas volumes in the US are poised to meet a significant portion of global liquefied natural gas (LNG) demand, further underscoring their importance.

Given the geopolitical stability of the US relative to some other countries on the list, these reserves hold significance not only for the nation itself but also for the broader global community.

Source: Rystad Energy UCube March 2024. Note: Total resources may differ while compared against other third-party sources. Rystad performs its own independent analysis wherein well productivity, development timeline, company plans etc., are considered while ascribing resources to fields. Undiscovered volumes could also subject to higher risking.

Gulf of Mexico holds the third highest resource potential in the country

Ranking Top 20 US Basins by Technically Recoverable Resources (Billion boe)



The table presents a comprehensive breakdown of oil, natural gas liquids (NGL), and natural gas resources across various basins in the United States. We have included all lifecycles i.e., producing, under development, discoveries and undiscovered potential.

The Permian leads the list with total resources of 148 billion barrels of oil equivalent (boe). With its vast resources in oil, NGL, and gas, the Permian remains a cornerstone of American energy production, driving the country's oil and gas boom in recent years.

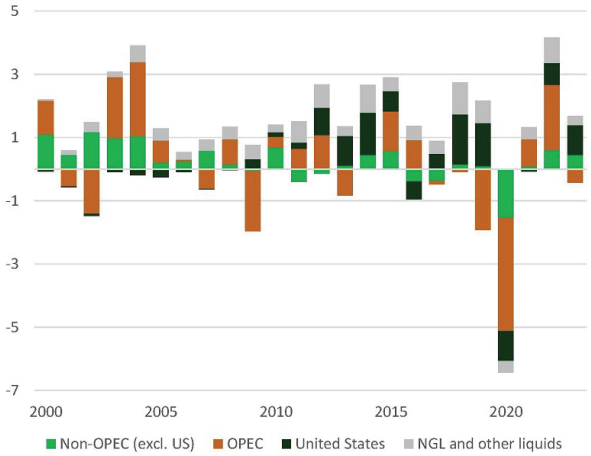
The Appalachia Basin stands out for its substantial natural gas resources, totalling nearly 119 billion boe. Its strategic location and rich gas deposits position it as a vital player in the US natural gas market.

Focusing offshore, the US GoM is a significant contributor to US hydrocarbon resource base, with a total of 57 billion boe. Despite its challenges, including deepwater exploration and production, the GoM remains a key offshore basin for oil and gas development. Outside US GoM, Rystad Energy ranks Alaska OCS, the Atlantic OCS and the Pacific OCS to hold the next highest undiscovered hydrocarbon volumes, of which nearly 60% is expected to be oil.

Source: Rystad Energy UCube March 2024. Note: Total resources may differ while compared against other third-party sources. Rystad performs its own independent analysis wherein well productivity, development timeline, company plans etc., are considered while ascribing resources to fields. Undiscovered volumes could also subject to higher risking.

US has been the main source of supply growth in the past 10 years

YoY change in global liquids supply (Million barrels per day)



To try to understand the importance of US from a global perspective, the chart shows the year-over-year growth in global liquids supply, split by source.

Before 2010, the global oil production – excluding NGL and other liquids – expanded on average by around 770,000 bpd. OPEC accounted for nearly 240,000 bpd of growth in that period while the rest of the world contributed by around 580,000 bpd. US on the other hand, declined by 55,000 bpd year-over-year on average.

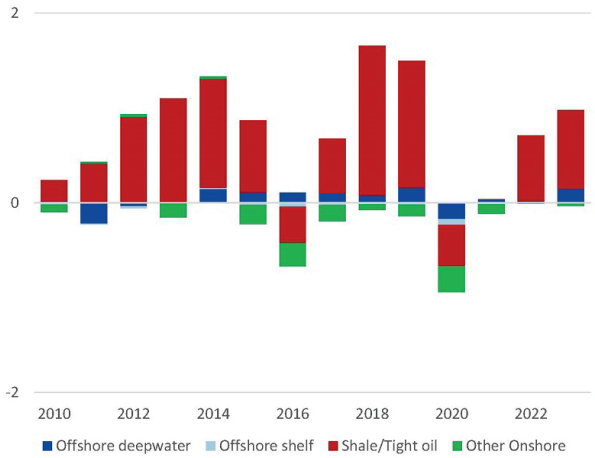
Since 2010, the story has been opposite. From 2010-23, global oil production – excluding NGL and other liquids – expanded on average by around 580,000 bpd. For the same period, US oil volumes grew at an annual rate of 540,000 bpd.

This shows how important the oil from the US has been for the oil market to balance over the last 10 years. Without it, global oil prices would have been considerably higher, as stronger markets would have been needed to incentivize more conventional spending.

Source: Rystad Energy UCube March 2024

Shale has been key but offshore deepwater has been pivotal too

YoY change in US oil supply (Million barrels per day)



Zooming into the US, this chart shows the year-over-year change of US oil supply since 2010. The volumes include crude oil and lease condensate only.

As one would expect, the shale revolution has been the major driver for the overall growth in oil supply. On average, the US shale has grown by around 625,000 bpd in the past 14 years. Within shale, the Permian basin has been the most crucial adding 365,000 bpd on average, followed by Eagle Ford, Williston and Denver basins.

Both conventional onshore and offshore shelf have continued to remain on decline. Offshore shelf declined by 16,500 bpd on average while conventional onshore declined by nearly 100,000 bpd.

Offshore deepwater, on the other hand, has continued growing through the last decade. On average, this supply source grew by around 33,000 bpd since 2010 and by around 73,000 bpd since 2014. Also, since 2014, deepwater US has grown every single year except 2020, which has marred by COVID. Rystad Energy expects US deepwater supply to continue growing over the next 2 years by around 150,000 bpd. However, the growth story can come to a stop if actions to find more volumes are not undertaken.

Source: Rystad Energy UCube March 2024

Most critical offshore source of supply for the US

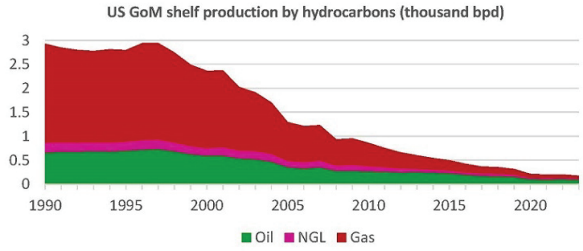
RystadEnergy

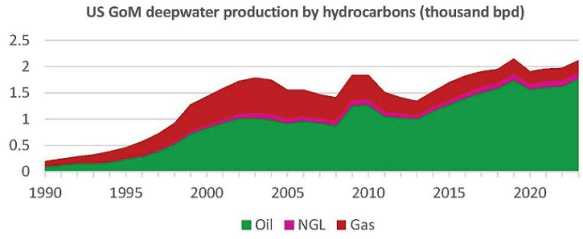
Deepwater production developments help offset the declining shelf supply

The US GoM has cumulatively accounted for nearly 88% of the US offshore hydrocarbon production till date. Volumes from shelf has amounted for over 61% while deepwater volumes have amounted for close to 27%. Currently, over 95% of offshore volumes are produced in the US GoM with deepwater accounting for 92% of that 95% share.

Gas was one of the most prominent hydrocarbon produced offshore while US GoM shelf was on song. However, the weightage has shifted towards oil in the past 20 years with the development growth in deepwater fields. Current oil production stands at 1.96 million bpd with another 145 thousand bpd NGLs. Commercial gas production stands at around 1.85 billion cubic feet per day.

Though production from US GoM has been the main contributor offshore, the region is still touted to hold significant undiscovered potential. Rystad Energy estimates these volumes to be around 38 billion boe.



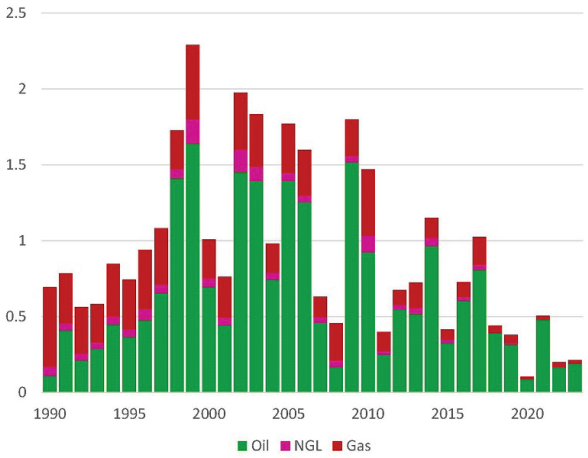


Source: Rystad Energy UCube March 2024

Key driver behind the possible offshore decline in supply

Declining discovered volumes underpins the need for acreage awards

Total Yearly Discovered Resources in offshore US (Billion boe)



Continued success in finding new hydrocarbon resources play a pivotal in sustained supply or even a possible supply growth. The chart above illustrates the yearly discovered volumes offshore US.

Since 1990, Rystad Energy estimates a total of nearly 32 billion boe to have been discovered offshore US. Of the 32 billion boe, companies have already developed nearly 24 billion boe while 2 billion boe are being developed right now.

Between 1990-2000, the yearly average discovered volumes amounted to nearly 1 billion boe each year. These volumes grew significantly to 1.3 billion boe between 2001-10. Since 2010, these discovered volumes have been declining gradually with the overall average being around 500 million boe. Over the past 5 years, the numbers are even more concerning with the average below 300 billion boe.

Since 2017, only a handful of discoveries have been greater than 100 million boe in size. Some of those include Whale, Ballymore , Leopard, Huron, Horn Mountain West, Khaleesi, Blacktip, Mormont etc.

Source: Rystad Energy UCube March 2024

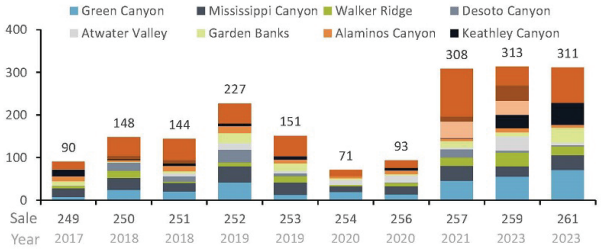
Awards in US Gulf of Mexico continue to attract major global E&Ps

Most recently, the Bureau of Ocean Energy Management (BOEM) held the Lease Sale 259 and Lease Sale 261. Both the lease sale garnered significant attention with over 300 leases awarded in each of them.

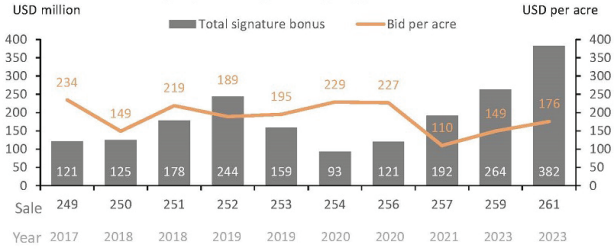
Green Canyon, Keathley Canyon, Mississippi Canyon and Garden Banks were the most sought-after areas in Lease Sale 261 while Lease Sale 259 saw attraction for not just Green Canyon and Keathley Canyon but also for Walker Ridge, Atwater Valley, High Island and Galveston Areas. Additionally, Lease Sale 261 saw $382 million being spent on the 311 tracts awarded, which bettered the record high $264 million spent on the 2017-2022 OCS leasing program.

These sales marked the end of the BOEM's 2017-2022 OCS Oil & Gas Leasing Program and the last at least until 2025.

Number of US Gulf of Mexico leases awarded per lease sale by protraction area



Total signature bonus (LHS) and cost per acre (RHS) per US GoM lease round



Source: Bureau of Ocean Energy Management

US offshore hosts the most diverse player landscape in the world

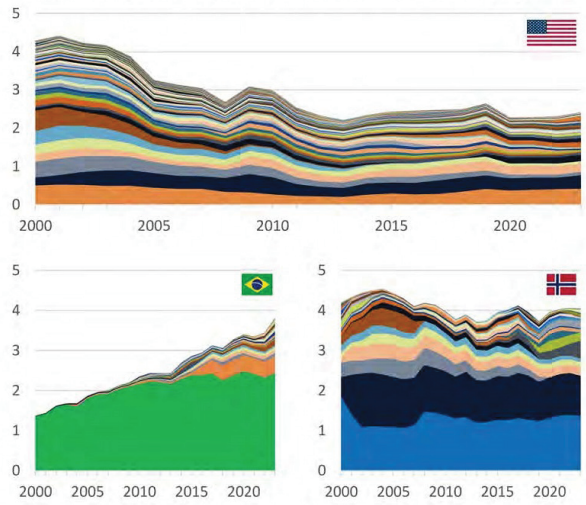
The offshore areas of the US host one of the most diverse landscape for any offshore hydrocarbon producing country. Over 300 companies, privates and publics included, hold participating interest in the several producing tracts and fields.

In comparison, Brazil, which is a deepwater giant, is majorly controlled by their national oil company Petrobras. Similarly, major portion of Norwegian production is controlled by the state owned Equinor and Petoro.

If we further expand the comparison, UK comes out as a comparable from a player count standpoint. Other offshore producers like Angola, Nigeria etc. have their own challenges.

Competitive breakeven, lenient fiscal terms, unparalleled infrastructure, are some factors US offshore one of the most attractive investment arenas for global exploration and production companies.

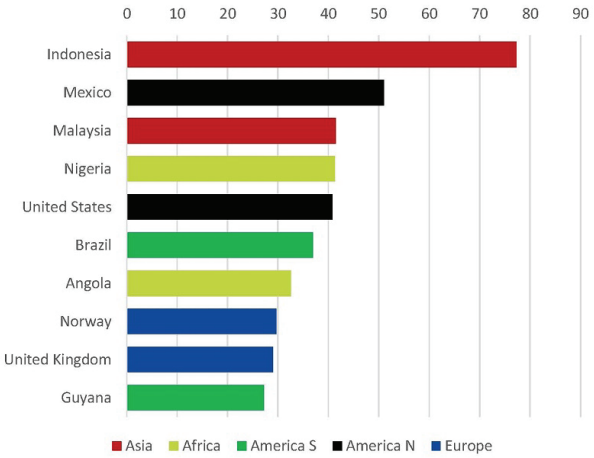
Total production split by company* (Million barrels of oil equivalent per day)



*Legend intentionally hidden as chart's main purpose is to emphasize the diverse player landscape
Source: Rystad Energy UCube March 2024

US offshore developments have been one of the more competitive globally

Average Offshore Breakeven Price* per Country (USD per barrel)



Breakeven prices (BEP) indicate at which oil/gas price an asset is commercial — in other words, the price required for a positive NPV, expressed as the current year (value as of today). Rystad Energy uses a yearly discount rate of 10% (7.5% real) is applied to calculate NPV. We also assume a constant relationship between all hydrocarbon prices.

As indicated in the chart, all oil fields sanctioned in the United States since 2017 have broken even at around $40 per barrel. This has been one of the threshold prices many companies have indicated as a target. Only countries like Brazil, Norway, UK and Guyana have seen better breakeven.

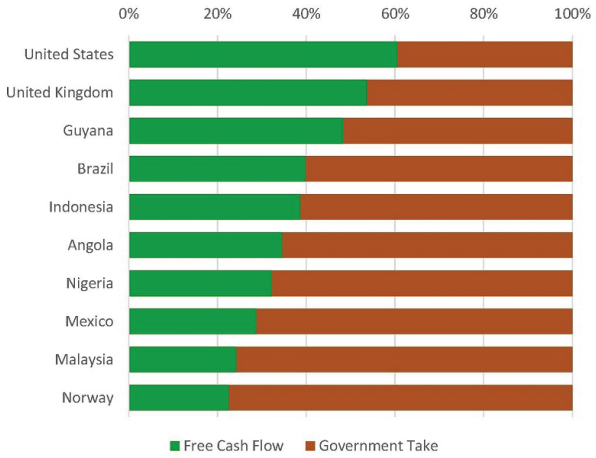
From a total resources sanctioned for the period in consideration stand-point, US is bettered only by Brazil where substantial investments have been diverted towards developing their large presalt oil fields in the Santos basin. From an investment standpoint, only Brazil and Norway have had higher investments approved for development.

These statistics indicate that the offshore US could continue to remain a hotspot for companies focusing offshore. However, it all depends on the health discovered volumes. With countries like Guyana, Namibia, & Suriname, demonstrative higher success rates, Rystad Energy notes the increased competition the offshore space.

*Offshore oil fields sanctioned for development from 2017-23. BEP at the time of discovery.
Source: Rystad Energy UCube March 2024

The US offers one of the most favourable fiscal regime in the world

Average Offshore Government Take per Country (USD per barrel)



This chart illustrates the ratio of present value of government take to the present value of free cashflow. Both these items are as of 1 January 2024 and calculated using a real discount rate of 7.5%. Government take includes all payments to government in the form of royalties, profit oil, federal tax, severance and ad-valorem tax while free cashflow is revenues minus capex, opex and government take.

This is an important parameter to measure while assessing the competitiveness and attractiveness of any country. Resources are important but profitability of investments also plays a significant role for companies while deciding their investment prioritization.

Even though the offshore play of the US is relatively mature, it still offers one of the most favourable fiscal regimes which only consists of royalties and taxes. Also, the stability offered in the US is unparalleled hence aiding the vast player landscape as discussed before.

To quantify, around 60% of the money generated post capex and opex goes to the companies versus 22-25% in countries like Malaysia and Norway. Even emerging oil producers like Guyana and Brazil see around 50-60% of the money go towards the respective governments.

Source: Rystad Energy UCube March 2024

Offshore US is one of the least carbon intensive upstream supply source

Benchmarking upstream emissions and production 2022 by country

Country	CO2 emissions (ktCO2)	Total production (kboe/d)	CO2 intensity (kgCO2/boe)	Extraction (kgCO2/boe)	Flaring (kgCO2/boe)
United States	158,278	34,375	13.0	12.0	1.0
Russia	125,559	21,162	16.3	9.4	6.8
Saudi Arabia	47,605	13,585	9.6	8.7	0.9
Canada	101,530	8,389	33.2	32.3	0.8
Iraq	44,595	4,974	24.6	5.3	19.2
Qatar	17,541	4,359	11.0	10.2	0.9
Norway	9,271	4,055	6.3	5.9	0.3
Brazil	20,685	3,446	16.4	14.5	2.0
Mexico	22,864	2,434	25.7	12.4	13.4
Nigeria	26,540	2,190	33.2	19.3	13.9
United States DW	4,536	1,975	6.3	5.8	0.5
United Kingdom	9,724	1,385	19.2	16.2	3.0

The table benchmarks the global upstream CO2 emissions across the key hydrocarbon producers globally. Additionally, the table also benchmarks the overall hydrocarbon production and the CO2 intensity. The CO2 intensity is further broken down into extraction and flaring intensity.

The US is the highest hydrocarbon producer in the world. They are followed by Russia, who have an almost equal split between oil and gas, like the US. Following on, is the oil dominant Saudi Arabia.

Given the highest production, the US also contributes to the highest emissions globally. However, the production and the overall emissions must be looked at collectively. From an upstream CO2 emission intensity standpoint, the US comes out better than the likes of Russia, Iraq, Canada, Brazil, Nigeria or even Mexico. In countries like Iraq, Mexico, and Nigeria , flaring intensity drives the overall emission intensity, which is quite low in the US.

Furthermore, we have shown the US deepwater separately. In comparison to other deepwater producers like Brazil, the US stands out. From an emissions intensity standpoint, only Norwegian hydrocarbon sector has lower numbers. This adds to the overall competitiveness that the US offshore sector

DW indicates deepwater
Source: Rystad Energy Global Upstream CO2 Emissions

Possible outcome of US offshore production

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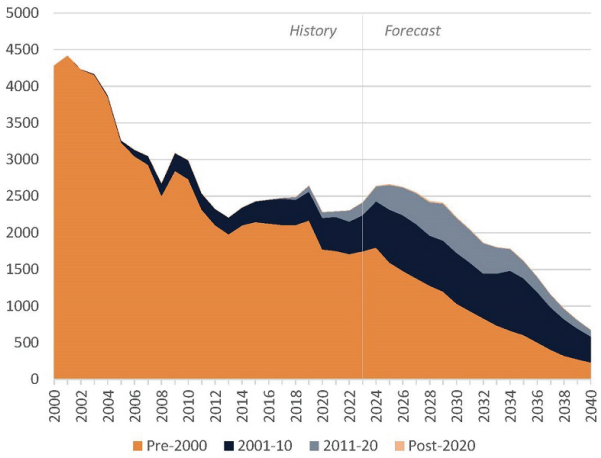
Offshore supply could enter terminal decline if no further leases are awarded

US offshore production by award vintages (thousand barrels of oil equivalent per day)



The chart illustrates the long-term outlook of US offshore supply split across award vintages. US offshore hydrocarbon production in 2023, amounted to 2.40 million boe per day. Off those volumes, around 72% or 1.75 million boe per day came from blocks that were awarded pre-2000. Blocks awarded between 2000-10 accounted for 20% while blocks awarded since accounted for the remaining. As we move towards 2030, production from the oldest vintages would amount to 47% while the remaining would come from the newer vintages, awarded since 2000.

What's important to note is that without those timely awards, production would have struggled to grow and would have remained on a decline trajectory. The previous production growth cycle that came between 2014-16 was driven mainly by the blocks awarded between 2001-10 while the upcoming production uptick will be majorly driven the blocks awarded between 2011-20.

For production to sustain above the 2-2.5 million boe per day mark, new awards and successful discoveries on them would be pivotal. Given the resource potential that remains undiscovered, US offshore production has the potential to sustain, if not growth, provided immediate actions are taken.

Source: Rystad Energy UCube March 2024

RystadEnergy

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Mr. ROSENDALE. Thank you very much for your testimony, Mr. Zaman.

Our next witness is Mr. Erik Milito. He is the President of the National Ocean Industries Association, and is stationed here in Washington, DC.

Mr. Milito, you are now recognized for 5 minutes. Thank you.

STATEMENT OF ERIK MILITO, PRESIDENT, NATIONAL OCEAN INDUSTRIES ASSOCIATION, WASHINGTON, DC

Mr. MILITO. Thank you, Mr. Chairman.

The National Ocean Industries Association represents all segments of the offshore energy industry, including offshore oil and gas, offshore wind, offshore carbon sequestration, and offshore minerals. We appreciate the efforts of the Committee to consider the importance of offshore oil and gas resource assessments so that we, as a nation, continue to improve our understanding of our energy potential.

The long-term energy security, national security, and economic security of the country depends upon policy decisions that are grounded in our energy realities. Resource assessments help serve to bridge the gap between our demand for energy and the supplies necessary to meet that demand.

Even with significant growth in renewables, oil and natural gas are expected to supply most of the energy consumed in the United States and globally through 2050, according to long-term forecasting from the EIA. For the past 40-plus years, each year the global economy has increased demand for oil by about 1 million barrels per day. We continue to become more efficient in our use of energy, but population growth and the rise of developing countries out of conditions of poverty are expected to lead to significant growth in demand for all sources of energy, including oil and gas, over the coming decades.

Global oil demand was at a record level of 102 million barrels per day in 2023, and it is expected to grow in the years ahead. The fundamental question becomes where do we secure this energy from? The answer should be simple and straightforward. We should secure our energy from the United States, and specifically the U.S. offshore region.

The U.S. offshore, and the Gulf of Mexico in particular, have served as the backbone of U.S. energy production for decades. The United States has been producing oil in the Federal Gulf of Mexico waters since the 1940s, and production from the Gulf has been steadily increasing over the past 30 years. In fact, this region has been producing more than 1 million barrels of oil a day since 1997, and hit its highest level of production on record, just over 2 million barrels per day, in August 2019, right before the onset of the pandemic.

When compared to other countries around the world, the U.S. Gulf of Mexico would be the eleventh largest producer of oil and gas in the global marketplace. In terms of energy affordability, production from the U.S. Gulf of Mexico plays a substantial role helping to meet global demand for our energy.

U.S. oil and gas production provides Americans with the best product when it comes to low-carbon-intensity barrels of oil. According to a study we sponsored with ICF International, oil produced from the Gulf of Mexico has a carbon intensity per barrel that is 46 percent lower than the foreign average. Policies that restrict domestic offshore development require imports to make up the shortfall, and that supplemental production comes from higher-emitting operations in other countries.

Policy decisions that restrict U.S. offshore energy development result in dramatic adverse consequences for our country by putting at risk many important benefits, benefits that include thousands upon thousands of good-paying jobs, funding for the Land and Water Conservation Fund, funding for coastal resiliency and restoration for the Gulf Coast states, funding for urban parks and recreation, and importantly, our national security interests.

It is crucial that we continue to research and understand our resource potential by updating our oil and gas estimates for the U.S. OCS, and it is critical that Federal policy promotes U.S. energy development in our offshore region through consistent leasing and permitting, and through open access to markets. This includes correcting the anemic OCS leasing program finalized last year.

I also want to touch upon the vast potential for the U.S. OCS for storing carbon dioxide. Our offshore region is uniquely situated to emerge as a global hub for carbon capture and storage. Along with the excellent geologic prospects for storing carbon dioxide, the Gulf Coast is home to the full supply chain of energy companies with the engineering experience, expertise, and vision to deploy CCS projects with the scale and efficiency necessary for success.

Congress passed the Infrastructure Investment and Jobs Act in November 2021. As part of that legislation, Congress set forth the requirement for Interior to promulgate regulations for offshore CCS by November 2022. Interior is nearly 2½ years past the deadline, and a proposed rule has yet to be published. This puts the United States at a competitive disadvantage to other parts of the world, where countries are seizing the opportunity to approve and construct offshore CCS projects.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Milito follows:]

PREPARED STATEMENT OF ERIK MILITO, PRESIDENT, NATIONAL OCEAN INDUSTRIES ASSOCIATION

For the past 50-plus years, the National Ocean Industries Association ("NOIA") has represented the interests of all segments of the offshore energy industry. Today this includes offshore oil and gas, offshore wind, offshore minerals, and offshore carbon sequestration companies. Our membership includes energy project leaseholders and developers and the entire supply chain of companies that make up an innovative energy system contributing to the safe and responsible exploration, development, and production of energy for the American people. The assessment of domestic energy reserves is highly consequential for our nation's future energy security and should inform our public policy moving forward. NOIA appreciates the efforts of the committee for convening this hearing and promoting data-driven, impactful energy policy.

The offshore energy sector is a proven leader in solving energy challenges and delivering diverse sources of energy to the global economy. For the foreseeable future, the offshore industry will play an integral role in shaping an energy system that promotes the provision of affordable and reliable energy while continuing to reduce environmental impacts, including emissions. Importantly, for the coming decades, oil and gas supplies will remain a vital energy source for Americans and our allies around the globe, while we simultaneously integrate and add lower carbon sources into the mix. The U.S. Gulf of Mexico is firmly established as a highly prospective region with abundant reserves of domestic oil and gas that will fuel our economy for decades to come.

The Bureau of Ocean Energy Management (BOEM) has recognized a promising future for oil development in the Gulf of Mexico. According to its *2021 Assessment of Technically and Economically Recoverable Oil and Natural Gas Resources of the*

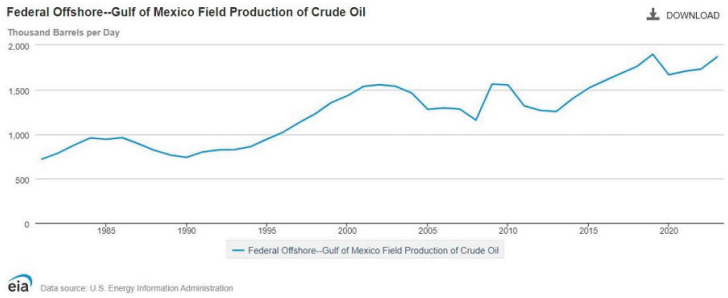
Gulf of Mexico Outer Continental Shelf,[1] the region contains estimated undiscovered technically recoverable resources in the range of 23.31 billion barrels of oil to 36.27 billion barrels of oil. According to experts at Energy and Industrial Advisory Partners, "A key requirement for continued Gulf of Mexico oil and natural gas production is continued lease sales, which enable operators to explore new acreage for previously undiscovered resources, develop new projects, and underpin existing and planned projects by allowing operators to backfill production into facilities with declining production."[2]

THE U.S. OFFSHORE REGION WILL CONTINUE TO FUEL OUR ECONOMY

As with many other forms of energy development, oil and gas production is contingent upon having acreage that can be explored and produced. Federal leasing is requisite to securing the acreage to develop and produce supplies of oil and gas for the country. Continued lease sales at regular intervals will enable declining production to be replenished and production levels to be increased when there are spikes in demand. Simply put, the more acreage that is available, the greater the potential for well-managed energy production.

According to Rystad Energy, global oil exploration activities must ramp up to meet global demand through 2050. More than $3 trillion in capital expenditure is estimated to be needed to add the undeveloped and undiscovered resources necessary for the global market.[3] Rystad analysts expect deepwater areas to play a prominent role in building essential energy supplies. According to Rystad Senior Upstream Analyst Palzor Shenga, "Upstream players may have to more than double their conventional exploration efforts in order to meet global oil demand through 2050."

The U.S. has been producing oil offshore in the federal Gulf of Mexico waters since the 1940s and production from the Gulf has been steadily increasing over the past 30 years. In fact, this region has been producing more than one million barrels of oil per day since 1997 and hit its highest level of production on record of 2.044 million barrels per day in August 2019, just before the onset of the pandemic:



Although production dropped during the pandemic in response to the related global economic downturn, the U.S. Gulf of Mexico has recovered and averaged 1.868 million barrels per day in 2023. We know from experience that technology advancements will continue to enable the discovery and development of ever-increasing volumes, resulting in a continuous upward trend over time in the estimated recoverable resources in the Gulf of Mexico. One of the earliest federal resources assessments, if not the earliest, was conducted by the U.S. Geological Service in 1975, which estimated a mean of 6.25 billion barrels of undiscovered crude oil in the Gulf of Mexico.[4] The study reflected the geologic realities as best it could and focused only on water depths of less than 200 meters. Foreshadowing how dramatically innovation and technology can revolutionize an industry, the first

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[1] https://www.boem.gov/sites/default/files/documents/regions/gulf-mexico-ocs-region/resource-evaluation/2021%20Gulf%20of%20Mexico%20Oil%20and%20Gas%20Resource%20Assessment%20%28BOEM%202021-082%29.pdf

[2] https://www.noia.org/noia-one-pagers-infographics/#flipbook-df_223664/1/, at page 3.

[3] https://www.ogj.com/general-interest/article/14188745/rystad-exploration-must-be-accelerated-to-meet-world-oil-demand

[4] https://www.boem.gov/sites/default/files/documents/about-boem/Historic%20Assessments_2021_fixed.pdf

deepwater oil field in the world was discovered in the Gulf of Mexico the very same year.[5] Federal assessments throughout the 1980s and first half of the 1990s were expanded to include water depths up to 2,500 meters. In 1996, Interior's Minerals Management Service (MMS) did not include any water depth limit in their assessment. Yet, by this point deepwater production was eclipsing shallow water production in the Gulf of Mexico.[6]

Today, cumulative historical production from the Gulf of Mexico is well over 21 billion barrels of oil, and, as noted earlier, the federal government estimates that there are still 23 to 36 billion barrels of oil remaining.[7] The offshore oil and gas industry is an exploratory, prospective business and there is often a gap between what we think is there based upon government estimates and what is actually there based on industry's exploration efforts, especially when considering the deployment of modern science and exploration techniques. Companies must have the opportunity to continue to lease acreage and conduct exploration activities through regular, formalized lease sales to close the gap. Exploration activities from seismic exploration to exploratory drilling add the necessary scientific data that is fundamental for more accurate estimates and the ultimate production of energy. These activities only occur once a company has secured a lease.

Oil is a global commodity, and investment in oil production projects occurs on a global scale. Eliminating or reducing lease sales in the U.S. federal offshore leasing program only serves to shift that investment away from the U.S. Gulf of Mexico to other regions, both offshore and onshore, throughout the world. Companies will naturally invest where there is more certainty, and the U.S. Government can increase certainty by continually updating resource estimates and providing acreage for leasing. It is critical that the U.S. does not cede ground in offshore energy production to other regions and that it recognizes that it is in the best interests of Americans to encourage and attract investment to U.S. offshore production opportunities. The numerous adverse consequences of eliminating or scaling back offshore oil and gas leasing negatively impact all Americans, most particularly those struggling to cope with increased energy costs, which continued to be threatened by geopolitical uncertainty. Offshore leasing is requisite to replenishing and building new supplies of oil and gas for Americans. It is only the first step in the process, but, without it, our nation will be left without the energy that is vital for our everyday lives, including transportation, manufacturing, agriculture, groceries, education, and healthcare. Energy affordability is fundamentally and directly tied to the supply and demand of energy sources, and energy supplies are assured through continued leasing and permitting.

ENERGY REALITIES

Energy lifts society. A system of reliable, abundant, and affordable energy is essential for meeting basic societal needs, including healthy living conditions, health care, education, and mobility, economic or otherwise. Oil, gas, and petroleum products fill the fuel tanks of passenger vehicles and airplanes. They are transformed into the essential building blocks of smartphones, clothing, and medical equipment. They are in so many products we use every day that they underpin the conveniences of modern life.

Natural gas is recognized as a key energy source for providing electricity, heating, cooling, and clean cooking. More than 750 million people around the globe do not have access to electricity, which leaves entire communities at a severe and fundamental disadvantage. According to the World Health Organization (WHO), "Access to energy is critical when it comes to the functionality of health-care facilities and the quality, accessibility and reliability of health services delivered. Electricity is necessary for the operation of critically needed medical devices such as vaccine refrigeration, surgical emergency, laboratory and diagnostic equipment, as well as for the operation of basic amenities such as lighting, cooling, ventilation and communications."[8]

Globally, 2.6 billion people do not have the means for clean cooking and must use solid fuels such as wood, crop wastes, charcoal, and dung in open fires and inefficient stoves. The WHO attributes 3.8 million premature deaths each year to indoor

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[5] https://www.offshore-mag.com/pipelines/article/14075106/cognac-pipeline-stretched-the-boundary-of-deepwater

[6] https://www.boem.gov/sites/default/files/documents/regions/gulf-mexico-ocs-region/US%20OCS%20GOMR%20Oil%20and%20Gas%20Production%20Forecast%202022-2031.pdf#:~:text=The%20plot%20is%20separated%20into,roughly%2090%25%20of%20total%20production.

[7] https://www.boem.gov/sites/default/files/documents/oil-gas-energy/BOEM%202020-028.pdf#:~:text=Cumulative%20Production%20from%20all%20fields,recoverable%20from%20459%20active%20fields.

[8] https://www.who.int/activities/accelerating-access-to-electricy-in-health-care-facilities

air pollution caused by the fumes and soot generated by inefficient and dirty cooking. The tragic impacts of energy insecurity are not only experienced abroad; 44 percent of low-income American households experience energy insecurity, spending 10 percent to 20 percent of their income on energy expenses.[9] Energy insecurity has adverse consequences on both physical and mental health. Millions of Americans are faced with the "heat or eat" dilemma, regularly having to choose between paying utility bills and paying for food.[10]

Currently, global oil consumption is approximately 100 million barrels per day. Various scenarios forecast global oil consumption volumes through 2050 and beyond, and nearly all of them predict substantial oil production will be necessary through at least 2050. The facts, data, and our experience make clear that we should focus on the U.S. offshore region, and the Gulf of Mexico in particular, for securing those vital resources.

Energy production in the U.S. Gulf of Mexico demonstrates that it is possible to develop offshore resources while adhering to the highest safety and environmental standards. A multitude of companies involved in offshore energy development are working collaboratively to shrink an already small carbon footprint. From electrifying operations to deploying innovative solutions that reduce the size, weight, and part count of offshore infrastructure—thus increasing safety and decreasing emissions—the U.S. Gulf of Mexico hosts a high-tech revolution. Oil produced from the U.S. Gulf of Mexico has a carbon intensity one-half that of other producing regions.[11] The technologies used in deepwater production—which represents 92 percent of the oil produced in the U.S. Gulf of Mexico—place this region among the lowest carbon intensity oil-producing regions in the world.[12] Policies that restrict domestic offshore development require imports to make up the shortfall and supplemental production may come from higher-emitting operations in other countries. Foreign providers may employ less environmentally conscientious production methods, which when combined with the added emissions from transporting oil over great distances by tanker, can increase the amount of carbon released into the atmosphere rather than decreasing it.

McKinsey estimates production from the U.S. Gulf of Mexico could decrease by about 800,000 barrels per day by 2040 without additional projects beyond those that have already been sanctioned. In that situation, McKinsey expects lost production would be made up by substitutions from other parts of the world without much oil demand destruction. The U.S. would be able to import sufficient oil, but it would come from higher-emitting basins, resulting in an increase in greenhouse gas emissions globally:

> This supply reduction would have to be offset by alternative sources to meet global demand, which could hinder net-zero goals significantly. Because many other oil producing regions globally have total unit costs similar to those in the Gulf of Mexico, global oil price increases or substitution with other energy sources wouldn't be expected, and global demand for oil would remain unchanged. Instead, the reduced Gulf supply would be offset by production increases from other sources, such as other deepwater basins, shale, and OPEC. Based on the higher emissions per barrel of this new supply, global emissions would increase by 50 million to 100 million metric tons of CO2e through 2040.[13]

In May 2023, NOIA released a report on emissions from global oil production by ICF International, the *GHG Emission Intensity of Crude Oil and Condensate Production*.[14] According to the report, U.S. oil production, and in particular, production from the U.S. Gulf of Mexico, has lower greenhouse gas emissions intensity than much of the rest of the world. According to ICF, increasing U.S. production (onshore and offshore) to a level that offsets foreign crude or condensate would result in a 23% reduction in the average international carbon intensity of those displaced oil production volumes. This translates to a removal of 5.7 CO2e kg/bbl from the global average outside of the U.S. and Canada of 24.4 CO2e kg/bbl. ICF esti-

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[9] http://large.stanford.edu/courses/2020/ph240/radzyminski2/

[10] S. Jessel, S. Sawyer, and D. Hernández, "Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature," Front. Public Health 7, 357 (2019).

[11] Motiwala, and Ismail, "Statistical Study of Carbon Intensities in the GOM and PB," ChemRxiv, April 13, 2020.

[12] https://www.woodmac.com/news/the-challenge-of-negative-emissions/

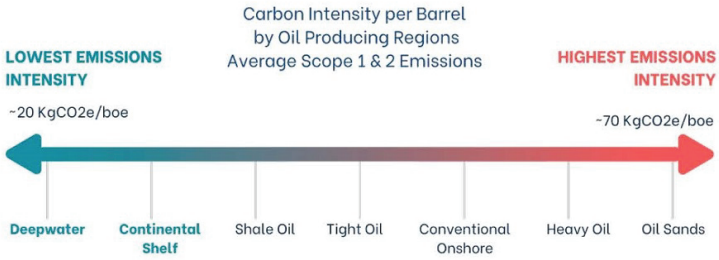
[13] Brown, Di Fiori, Smith, and Yanosek, "Deepwater Gulf of Mexico's role during the energy transition," McKinsey, September 2022, at page 6.

[14] https://www.noia.org/wp-content/uploads/2023/05/NOIA-Study-GHG-Emission-Intensity-of-Crude-Oil-and-Condensate-Production.pdf?utm_source=Mailchimp&utm_medium=email&utm_campaign=ICF+study+emissions+

mates that increasing U.S. Gulf of Mexico production to offset foreign crude or condensate would lead to a significant reduction in the average carbon intensity of the substituted oil volumes. Specifically, they estimate a 46% decrease, which translates to a removal of 11.3 CO2e kg/bbl from the global average.

Offshore energy is a true story of accomplishing more with less—creating more energy with less environmental impact. Offshore production platforms are incredible edifices of continuously evolving technology that allow enormous amounts of energy to be produced through a relatively small footprint. Incredibly, 18 deepwater facilities, which equate to about the size of only nine city blocks, produce about the same amount of oil as the entire state of North Dakota.[15]

Emissions reduction is a global challenge. As analysts at Wood Mackenzie explain, "Removing or handicapping a low emitter hurts the collective global average."[16] Removing a proven, stable supplier such as the U.S. Gulf of Mexico would be a poor choice with devasting consequences. The better choice is to institute government policies that promote cleaner and safer domestic production, less reliance on higher-emitting foreign suppliers like Russia and China, and the preservation of hundreds of thousands of American jobs.



Efforts to restrict U.S. energy development could eventually lead to Americans of every walk of life having to contend with the issues Europe has been experiencing as a result of disrupted supply from Russia, including potential industrial curtailment and families having to make difficult choices between heat and food. Our energy reality makes it clear that U.S. energy policy should support U.S. energy production of all types, including offshore oil and gas and wind. Government policies play a substantial role in the ability to develop energy in the U.S., whether onshore or offshore, and whether the energy source is oil and gas, wind, hydrogen, or another resource. Obstructive government policies inevitably lead to adverse consequences for our energy security, national security, economic security, and decarbonization efforts.

OFFSHORE ENERGY DEVELOPMENT ENHANCES QUALITY OF LIFE

Oil and natural gas touch every part of our daily lives. Fundamentally, "Everything that is fabricated, grown, operated or moved is made possible by hydrocarbons."[17] The U.S. Department of Energy states:

> Oil and natural gas play an essential role in powering America's vibrant economy and fueling a remarkable quality of life in the United States. Together, oil and natural gas provide more than two-thirds of the energy Americans consume daily, and we will continue to rely on them in the future. In addition to meeting our energy needs, oil and natural gas are integral to our standard of living in ways that are often not apparent. Several key advances in technology enabled a dramatic increase in domestic oil and natural gas production over the past 20 years. This increased production provides energy security and economic benefits to the entire country, and ongoing technology advances will help us to enjoy those benefits into the future.

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[15] Director Scott Angelle, BSEE Director, BSEE Presentation to the Deepwater Technical Symposium, November 13, 2020.

[16] https://www.woodmac.com/news/opinion/could-restricting-oil-production-in-the-us-gulf-of-mexico-lead-to-carbon-leakage/

[17] Mark Mills, Wall Street Journal, January 8, 2019

> Oil and natural gas are used in many ways that are familiar to consumers. Petroleum products power transportation, providing fuel for cars, trucks, marine vessels, locomotives, and airplanes. Natural gas generates more than one-third of the electricity needed for dependable heating, air conditioning, lighting, industrial production, refrigeration, and other essential services, and tens of millions of Americans rely on oil and natural gas to heat their homes directly and on clean burning natural gas to cook their food. But petroleum products do so much more than fuel our cars and power our homes and businesses.
>
> While perhaps less recognized, oil and natural gas also play critical roles in supplying essential products and materials, increasing agricultural productivity, and supporting the expansion of new energy sources.
>
> Oil, natural gas, and natural gas liquids are building blocks for a range of modern materials used to produce life-changing prosthetics, energy-efficient homes, safer cars that go farther on a gallon of gasoline, and hundreds more consumer products that Americans use every day. Plastics and chemicals derived from oil and natural gas make our food safer, our clothing more comfortable, our homes easier to care for, and our daily lives more convenient.
>
> Natural gas is also a key ingredient for chemical fertilizers, helping increase crop production and yield per acre planted, and powering many important operations on the farm like crop drying.[18]

According to the United Nations, access to affordable, reliable, and sustainable energy is critical to achieving many international development goals, specifically, the eradication of poverty through continued improvements in education, health, and access to water.[19] Oil and natural gas play a central role in eliminating poverty and raising the standard of living for millions by serving as a key form of abundant and affordable energy.

OFFSHORE ENERGY DEVELOPMENT IMPROVES ENERGY AFFORDABILITY

The cost of energy is fundamentally driven by supply and demand and, over the past decade, global markets have been impacted by supply disruptions in both the oil and natural gas markets. The energy paradigm has shifted over the past decade, with the United States rising to a position of energy power and emerging as the leading producer of both oil and natural gas in the world.

Vice Chairman of IHS Markit (now S&P Global) Daniel Yergin explains how things have changed:

> According to the old script, United States oil production was too marginal to affect world oil prices. But the gap today between demand and available supply on the world market is narrow. The additional oil Saudi Arabia is putting into the market will help replace Iranian exports as they are increasingly squeezed out of the market by sanctions . . .. But if America's increase . . . [in oil production] . . . had not occurred, then the world oil market would be even tighter. We would be looking at much higher prices—and voters would be even angrier.[20]

Mr. Yergin made this point in 2012 at the outset of the shale revolution, but the significance of U.S. production for global energy markets is as important as ever today. In fact, Mr. Yergin reiterated this very point in February 2022 in the aptly title op-ed in the *Wall Street Journal*, "America Takes Pole Position on Oil and Gas."

Analysts recognize that the downturn in the oil and natural gas industry from 2014–2020, combined with ill-conceived policies and investment approaches, led to significant underinvestment in oil and natural gas exploration and infrastructure. According to Simon Flower, Chairman, Chief Analyst at Wood Mackenzie and author of a weekly column called The Edge, in 2021, "Underinvestment in oil supply will lead to a tight oil market later this decade. It's a narrative that's gained increasing traction as capital expenditure on upstream oil and gas has shrunk. Spend in 2021 is half the peak of 2014 after slumping to new depths in [2021's]

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[18] *U.S. OIL AND NATURAL GAS: Providing Energy Security and Supporting Our Quality of Life*, U.S. Department of Energy, September 2020, p. 4.

[19] https://unstats.un.org/sdgs/report/2016/goal-07/

[20] Daniel Yergin, "America's New Energy Reality," *The New York Times*, June 9, 2012

crisis."[21] Mr. Flowers poses the question, "How much ***new*** oil supply does the world need?" His answer is, "A lot—we reckon about 20 million b/d from 2022 to 2030." According to Flowers, "This is the 'supply gap', the difference between our estimate of demand in 2030 and the volumes we forecast existing fields already onstream or under development can deliver."[22] If his numbers are correct, a huge amount of new oil is needed to close the expected gap between the supply and demand and help bring stability and affordability to oil and petroleum product prices.

Saudi Aramco CEO Amin H. Nasser identified the crux of the energy crisis in his remarks during the Schlumberger Digital Forum, on September 20, 2022:

> Unfortunately, the response so far betrays a deep misunderstanding of how we got here in the first place, and therefore little hope of ending the crisis anytime soon. So this morning I would like to focus on the real causes as they shine a bright light on a much more credible way forward.
>
> When historians reflect on this crisis, they will see that the warning signs in global energy policies were flashing red for almost a decade. Many of us have been insisting for years that if investments in oil and gas continued to fall, global supply growth would lag behind demand, impacting markets, the global economy, and people's lives.
>
> In fact, oil and gas investments crashed by more than 50% between 2014 and last year, from $700 billion to a little over $300 billion. The increases this year are too little, too late, too short-term.
>
> Meanwhile, the energy transition plan has been undermined by unrealistic scenarios and flawed assumptions because they have been mistakenly perceived as facts. For example, one scenario led many to assume that major oil use sectors would switch to alternatives almost overnight, and therefore oil demand would never return to pre-Covid levels.
>
> In reality, once the global economy started to emerge from lockdowns, oil demand came surging back, and so did gas.[23]

Mr. Nasser's remarks about the challenges ahead are similarly profound, "Oil inventories are low, and effective global spare capacity is now about one and a half percent of global demand. Equally concerning is that oil fields around the world are declining on average at about 6% each year, and more than 20% in some older fields last year. At these levels, simply keeping production steady needs a lot of capital in its own right, while increasing capacity requires a lot more."[24]

We are fortunate in the United States that our Gulf of Mexico region is up to the task of delivering the oil and gas the economy needs. Production numbers from the U.S. Gulf of Mexico place it among the largest oil producing countries. If the Gulf of Mexico were its own country, it would be one of the top 11 oil producing countries in the world (source EIA):

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[21] https://www.woodmac.com/news/the-edge/is-the-world-sleepwalking-into-an-oil-supply-crunch/

[22] https://www.woodmac.com/news/the-edge/is-the-world-sleepwalking-into-an-oil-supply-crunch/

[23] https://www.aramco.com/en/news-media/speeches/2022/remarks-by-amin-h-nasser-at-schlumberger-digital-forum#

[24] https://www.aramco.com/en/news-media/speeches/2022/remarks-by-amin-h-nasser-at-schlumberger-digital-forum#

OFFSHORE CARBON CAPTURE AND STORAGE

U.S. leadership in Carbon Capture and Storage (CCS) will help ensure the availability of abundant, reliable, and affordable domestic energy, while continuously driving down emissions. According to the International Energy Agency:

> *Carbon capture, utilisation and storage (CCUS) technologies offer an important opportunity to achieve deep carbon dioxide (CO_2) emissions reductions in key industrial processes and in the use of fossil fuels in the power sector. CCUS can also enable new clean energy pathways, including low-carbon hydrogen production, while providing a foundation for many carbon dioxide removal (CDR) technologies*.[25]

As it relates specifically to the offshore, the National Petroleum Council concluded that "One of the largest opportunities for saline formation storage in the United States can be found in federal waters, particularly in the Gulf of Mexico." *Meeting the Dual Challenge*, p. 27. The U.S. Gulf of Mexico offshore region provides tremendous advantages for an emerging U.S. CCS sector. The Gulf of Mexico is characterized by vast geologic prospects for CO2 storage, extensive and established energy infrastructure along the Gulf Coast and throughout the outer continental shelf, a proximity to industrial centers for capturing emissions, and an assessable engineering and energy knowledge base and workforce, along with associated RD&D capabilities. The U.S. Gulf of Mexico could very well soon be the global leader in CCS. Early projections show that 50 million tons of CO2 annually could be stored beneath the Gulf of Mexico by 2030, more than all the CCS currently operating globally. The Gulf's storage capacity could double by 2040.

However, the build-out of the U.S. offshore carbon storage industry will depend upon certainty and predictability in U.S. laws and regulations. The Infrastructure Investment and Jobs Act of 2021 (P.L. 117-58) included Sec. 40307, explicitly authorizing the Department of the Interior to grant leases, easements, or rights-of-way on the outer continental shelf for the purposes of long-term storage of CO2. It also mandated the Secretary to issue regulations to that effect within one year of enactment, or by November 2022. Our industry stands ready to invest in federal offshore carbon sequestration projects but it cannot be done without a regulatory framework. The regulations are more than a year past the Congressional-mandated deadline and have not even been proposed yet. This unnecessary, protracted timeline for the finalization of the rules and for the initiation of leasing and project development substantially impedes U.S. Gulf Coast investment and efforts to decarbonize through offshore CCS.

[25] https://www.iea.org/reports/the-role-of-co2-storage

CONCLUSION

Our national energy needs require continued supplies of oil and natural gas and part of this national imperative is understanding the resources with which our nation is blessed, particularly in the U.S. offshore region. Continued U.S. offshore oil and gas development provides vast benefits and a sensible pathway for energy security for the next few decades. NOIA and its members stand ready to work with policymakers to advance policies to ensure that Americans can rely upon an affordable and reliable energy system built upon strong pillars of energy, economic, national, and environmental security.

Mr. ROSENDALE. Thank you very much, Mr. Milito. Our next witness is Mr. Joe Dryer, and he is the President and CEO for Fairfield Geotechnologies, and is stationed in Houston, Texas.

Mr. Dryer, you are now recognized for 5 minutes.

STATEMENT OF JOE DRYER, PRESIDENT AND CEO, FAIRFIELD GEOTECHNOLOGIES, HOUSTON, TEXAS

Mr. DRYER. Thank you, Mr. Chairman. I present this testimony in my role as President and CEO of Fairfield, and as a board member of the EnerGeo Alliance. EnerGeo was founded in 1971, and represents the geoscience companies, innovators, and energy developers that use Earth science to discover, develop, and deliver energy sustainably to our world. I appreciate the opportunity to testify before this Subcommittee.

As the tip of the spear for nearly all energy sources, energy geoscience provides invaluable information about the resources beneath us that energy companies and policymakers can use to identify and prioritize. The reality is, no matter the preferred or prioritized energy source, virtually all sources of energy needed to support the world's energy evolution require eyes on something going in, out, or through the ground. And that simply cannot happen without the innovation and insight of the energy geoscience industry, which is why at EnerGeo Alliance we proudly say we are making energy possible.

It is important to point out that seismic and other geoscience survey activities are temporary and transitory. They are the least intrusive and only commercially scalable way to explore the Earth's geology. The only viable process for the U.S. Government to understand the country's resource potential is through geoscience surveys conducted by advanced technology companies like Fairfield and those that comprise EnerGeo's membership. These surveys inform BOEM's comprehensive assessment of undiscovered oil and gas resources on the OCS.

[Chart.]

Mr. DRYER. The Gulf of Mexico is one of the least emissions-intensive resource plays in the world, second only to Norway, but according to my friend at Rystad, we are about even. With every new leap in geoscience innovation, energy sources broaden and energy discoveries, and subsequently, production, significantly increases, as you can see on the chart we provided.

The reality is the geoscience industry has a long track record of safe, responsible operations around the world. Unfortunately, the permitting of this activity, critical to identifying the nation's energy supplies, is too often stalled or impeded by extreme environmental

advocacy organizations exploiting existing, cumbersome regulatory processes, and litigation aimed at outdated and vague statutes.

Permitting and authorization delays by both BOEM and NMFS, respectively, will ultimately lead to a reduced interest in pursuing energy projects in the United States. EnerGeo has conveyed to Congress and the agencies the need for legislative and regulatory efficiencies to meet future energy demands.

By 2050, the world population is estimated to increase to almost 9.8 billion. Total energy use is expected to increase by 34 percent. With an expected steady growth in main stage sources of energy, and even faster growth anticipated on all other sources, the energy and geoscience industry is integral to meeting policies of lower carbon economies, including in the United States.

There are now 30 commercial operational CCS facilities worldwide that have a capture capacity of 40 million ton per annum. More than 20 have come on-line in the last 2 years. Over half of these are in North America. An additional 141 facilities are in development or under construction and will provide an additional 112 million ton per annum of capture capacity by 2030. But to go net zero by 2050, these figures would have to grow by 140X.

In March 2021, the Biden administration has set an ambitious goal of deploying 30 gigawatts of offshore wind electricity generation by 2030. Further, in April 2023, the President highlighted new steps the United States was taking to meet its 1.5 degrees Celsius-aligned goal of reducing emissions 50 to 52 percent by 2030. These goals are simply not possible to meet without the geoscience industry.

The Alliance continues to call on BOEM and the current Administration to propose long-overdue regulations for offshore carbon capture. However, regulations should not be used to differentiate between given energy sources when it comes to permitting geoscience activities. Our members execute surveys and use advanced technology to provide products to energy developers and producers. Those activities employ the same general techniques, regardless of whether clients are developing gas and oil or offshore wind. The regulations should not make a distinction either way.

At EnerGeo, we are advocating to ensure all policymakers and energy companies have access to reliable data analysis to support their forward-moving efforts. Thank you for the opportunity to testify today.

[The prepared statement of Mr. Dryer follows:]

PREPARED STATEMENT OF JOE DRYER, PRESIDENT & CEO, FAIRFIELD GEOTECHNOLOGIES
ON BEHALF OF THE ENERGEO ALLIANCE

Chairman Stauber, Ranking Member Ocasio-Cortez, and Members of the Subcommittee:

For the record, my name is Joe Dryer and I am the President & CEO of Fairfield Geotechnologies. I joined Fairfield Geotechnologies in 1997 as Sales Manager for the Systems Division. I have held several leadership positions of increasing responsibility within Fairfield which included Vice President of the Data Licensing Division and Chief Sales Officer. In 2021 I was promoted to President and Chief Executive Officer. Prior to joining Fairfield I worked on various acquisition crews around the globe. I graduated from Texas Tech University and completed the renowned Advanced Management Program at Harvard Business School. Since 2019, I have served on the EnerGeo Alliance Board of Directors working closely with our

members, regulators, and other stakeholders around the world to ensure that energy resources are identified and developed in a sustainable manner.

Privately held Fairfield Geotechnologies is a leading provider of high-resolution multi-client seismic data and services in the United States. Combining market-leading subsurface reflectivity and signal imaging techniques with strategic partnerships, Fairfield Geotechnologies delivers a superior solution for developmental exploitation. More than 30 years ago, Fairfield Geotechnologies established a standard for how we operate—a combination of innovative solutions, discipline, and exceptional leadership.

I present this testimony in my role as President & CEO of Fairfield Geotechnologies and as a Board Member of the EnerGeo Alliance. Founded in 1971, EnerGeo is the global trade alliance for the energy geoscience and exploration industry, the intersection where earth science and energy meet. EnerGeo Alliance and its member companies span more than 50 countries, representing onshore and offshore survey operators and acquisition companies, energy data and processing providers, energy companies, equipment and software manufacturers, industry suppliers, service providers, and consultancies. EnerGeo represents the geoscience companies, innovators, and energy developers that are using earth science to discover, develop, and deliver energy, sustainably, to our world. Together, we are Making Energy Possible.

EnerGeo member companies, which operate in the U.S. both onshore and offshore across the Outer Continental Shelf (OCS) and extensively within the Gulf of Mexico (GOM), play an integral role in the successful exploration and development of offshore hydrocarbon, wind and low-carbon solutions such as carbon capture and storage (CCS) resources through the acquisition and processing of geophysical and geological data.

Through reliable science- and data-based regulatory advocacy, credible resources and expertise, and future-focused leadership, EnerGeo Alliance continuously works to develop and promote informed government policies that advance responsible energy exploration, production, and operations. As the U.S. and global energy demand evolves, we believe that all policymakers and energy companies, providing mainstay, alternative, and low-carbon solutions, should have access to reliable data and analysis to support their forward-moving efforts.

Geoscience Industry & Activities Overview

I appreciate the opportunity to testify before the Subcommittee on Energy and Mineral Resources on *Assessing Domestic Offshore Energy Reserves & Ensuring U.S. Energy Dominance*. As the tip of the spear for nearly all energy sources and lower-carbon solutions, energy geoscience provides invaluable information about the resources beneath us that energy companies and policymakers can use to identify and prioritize high-density, lower-carbon intensive energy sources, locate where offshore wind facilities are best suited for harnessing the energy from wind, prolong the life of existing natural gas and petroleum assets, make it possible to store carbon beneath the surface, and more.

The reality is, no matter the preferred or prioritized energy source, virtually all sources of energy needed to support the world's energy evolution require "eyes" on something going in, out, or through the ground, and that simply cannot happen without the innovation and insight of the energy geoscience industry. Which is why at EnerGeo Alliance, we proudly say, "we are making energy possible."

Seismic and other geoscience surveys have been safely conducted in the U.S. and around the world for over 60 years. These geoscience surveys are the critical first step to better understanding the resource base of the Outer Continental Shelf (OCS) and providing policy makers and regulators with the information they need to make informed decisions about energy development and carbon capture based on the best available data.

There is an increasing need to educate on the criticality of exploration to ensure global access to energy in the future. By 2050, the world population is estimated to increase to almost 9.8 billion.[1] Total energy use is expected to increase 34%, with an expected steady growth in mainstay sources of energy and faster growth anticipated in all other sources.[2] In this scenario, exploration will be critical for the energy evolution. While about 5 billion barrels of oil were discovered in 2023, by

[1] Source: *2023 Population Data Sheet*—https://www.prb.org/wp-content/uploads/2023/12/2023-World-Population-Data-Sheet-Booklet.pdf

[2] Source: *EIA International Energy Outlook*—October 2023 https://www.eia.gov/outlooks/ieo/

2050 we will need to discover 17.56 billion barrels per year to match the global energy demand.[3]

The economic and technological advances over the last 200 years have transformed how we produce and consume energy. See Figure 1,[4] showing how the global energy mix has evolved since 1800.

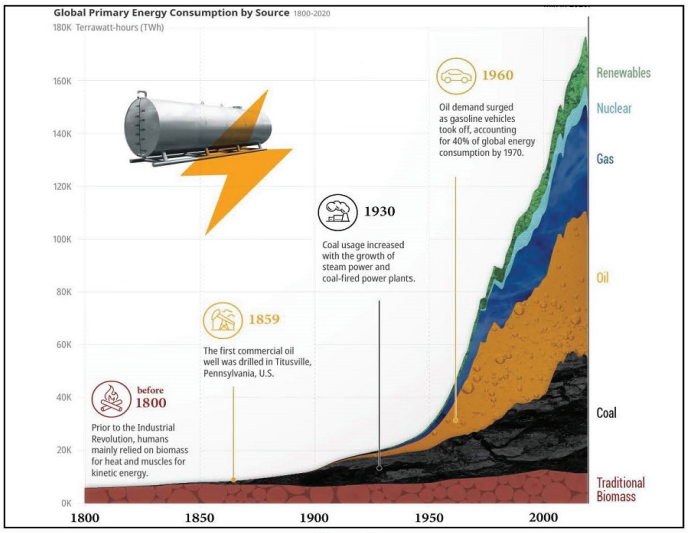

Figure 1

Global oil demand has reached new records; 2.2–2.4mbd increase in 2023 to 102mbd, compared to oil supplies only rising by about 1.4–1.5 mbd. Over 108 mbd by 2030. Remarkable departure from scenario IEA laid out in its Roadmap to Net Zero by 2050 roadmap just two years ago where they had oil demand peaking in 2019 at 100 mbd and declining to 75mbd by 2030.

Access to exploration relies on government authorizations, so policymakers' understanding of energy geoscience and exploration as *the key energy enablers is imperative to ensuring energy optionality and security and meeting future energy demand*.

The only viable process for the U.S. Government to understand the country's resource potential is through geoscience surveys conducted by advanced technology companies like those that comprise EnerGeo's membership. According to BOEM's website, regarding resource evaluation, "Every five years BOEM provides a comprehensive assessment of undiscovered oil and gas resources on the OCS. The results are presented as both Undiscovered Technically Recoverable Resources (UTRR) and Undiscovered Economically Recoverable Resources (UERR). The assessment utilizes a geologic play-based approach that incorporates a complete analysis of geologic and petroleum system elements for the UTRR, and an assessment of engineering and economic considerations for the calculation of the UERR. DOI has released an Assessment of Undiscovered Oil and Gas Resources on the US OCS regularly since 1975." This information is not possible and would not be available to policy makers and U.S. citizens without the geoscience industry.

As an example of the usefulness of geoscience data, in 2017 BOEM released a 1.4-billion-pixel map that will help scientists from academia, environmental agencies, and governmental agencies further understand the prolific Gulf of Mexico region. This once-impossible feat was created by using more than 200 individual maps from geophysical companies, all of which are EnerGeo members. The maps cover 135,000 square miles of the Gulf of Mexico with datasets spanning more than 30 years.

The GOM is one of the least emissions-intensive resource plays in the world, second only to Norway. The basin's success and incredible production record is only

[3] Source: RystadEnergy UCube; Rystad Energy U.CubeExploration; Rystad Energy research and analysis

[4] Source: Elements.visualcapitalist.com; Vaclav Smil, BP Statistical Review of World Energy

possible with the innovation of the energy geoscience industry, specifically, seismic surveys. With every new leap in geoscience innovation, energy sources broaden, and energy discoveries & subsequently production significantly increases. EnerGeo members are investing millions in research and innovation, leveraging technology to solve our most complex energy challenges. With each step change in technology, there has been a commensurate increase in the number of discoverable reserves (See Figure 2).

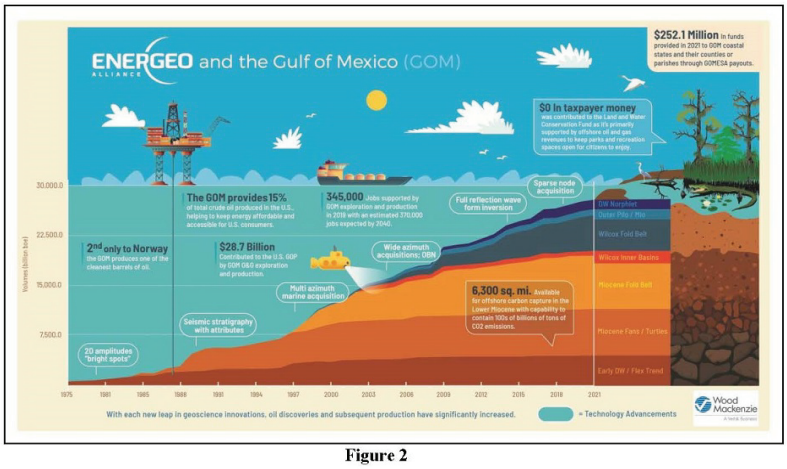

Figure 2

Surveys do not necessarily lead to hydrocarbon development. In fact, surveys determine both areas that are *and are not* likely to have recoverable oil and gas resources, and are imperative to ensure those basins that are developed are done so targeting the highest energy-dense, and least emissions-intensive barrels, and with the lowest environmental footprint. Energy geoscience does not only critically prove barrels are produced with the smallest footprint, but our industry is also committed to ensure our work is conducted with the least emissions possible. In 2022, EnerGeo published "Guidance for Estimating and Reporting Greenhouse Gas (GHG) Emissions", to provide GHG emissions-based guidance and resources for the marine geoscience survey industry. This ensures the appropriate focus on a "transition" to lower emissions, not away from energy when the world needs it most.

Meeting the growing demand for energy that is more accessible, affordable, reliable, and cleaner will require greater collaboration. At EnerGeo Alliance, we are proud of our unique collaborations between industry, scientists, and governments to support energy access. EnerGeo has implemented the Gulf of Mexico Proactive Regulatory Observational Program (GOM-PROP) to provide a self-sustaining structure for the continued successful implementation of, and compliance with, both present and future Incidental Take Regulations (ITR), governing the operation of geoscience surveys in the Gulf of Mexico (GOM). Our industry has also created the Netuno environmental database program, focused on Brazil and recently expanded to cover the Americas, to compile data that has been collected since 2005 in a standardized manner, make it accessible, and transform it into knowledge for stakeholders—including the industry and regulators. Netuno is a virtual portal containing public environmental data, derived from project implementation required as part of the environmental permitting.

Today's advancements in technology, which can pinpoint the most fruitful areas for hydrocarbon potential, siting of wind turbines offshore and locating areas for carbon storage, have contributed to reducing the overall environmental footprint associated with energy exploration. Advances in the technology we deploy have also helped to decrease operational and safety risks associated with energy development.

Seismic and geoscience surveying is a well understood and safe industry practice, and informed policy decisions regarding offshore energy development can *only* be made with the evaluation provided by modern seismic survey technology. And it is for this very reason that environmental advocacy groups have actively worked to politicize the seismic survey permitting process, under the pretense of alleged harm to marine mammals.

As the Bureau of Ocean Energy Management (BOEM) and the National Marine Fisheries Service (NMFS) have continually stated time and time again—throughout changing political administrations—*to date, there has been no documented scientific evidence of noise from acoustic sources used in seismic activities adversely affecting marine animal populations or coastal communities*.[5] They note that this technology has been used for decades around the world, including in U.S. waters in the Gulf of Mexico and offshore Alaska, with no known detrimental impact to marine life populations or to commercial fishing.

Indeed, more than six decades of worldwide geoscience surveying and scientific research demonstrate that the risk of direct physical injury to marine mammals is extremely low, and there is no scientific evidence demonstrating biologically significant negative impacts on marine life populations. Because survey activities are temporary and transitory, they are the least intrusive way to explore the earth's geology. *In the more than 60 years of seismic surveying in the Gulf of Mexico, there has not been a single reported incidence of sound from seismic operations injuring marine life*.

The geoscience industry is committed to conducting its operations in an environmentally responsible manner, and utilizes mitigation measures, such as exclusion zones, soft-starts, and protected species observers to further reduce any possibility of potential impacts to marine life. The industry supports a process of developing and implementing effective mitigation measures that are proportionate to the level of potential risk and specific to the local population of marine animals.

The reality is the geoscience industry has a long track record of safe, responsible operations around the world. Unfortunately, the permitting of this activity critical to identifying the nation's energy supplies is too often stalled or impeded by extreme environmental advocacy organizations exploiting existing regulatory and litigation processes.

BOEM Permitting & NMFS Authorization Delays

In the Outer Continental Shelf Lands Act (OCSLA), Congress expressly mandated the "expeditious and orderly development" of the Outer Continental Shelf (OCS) "subject to environmental safeguards." 43 U.S.C. § 1332(3). Courts have since confirmed that "the expeditious development of OCS resources" is OCSLA's primary purpose. *California v. Watt*, 668 F.2d 1290, 1316 (D.C. Cir. 1981). Congress enacted OCSLA to "achieve national economic and energy policy goals, assure national security, reduce dependence on foreign sources, and maintain a favorable balance of payments in world trade." 43 U.S.C. § 1802(1). Congress expressly intended to "make [OCS] resources available to meet the Nation's energy needs as rapidly as possible." *Id*. § 1802(2)(A). Geoscience surveying has been and continues to be essential to achieving OCSLA's requirements because it is the only feasible technology available to accurately image the subsurface of the OCS before a single energy source is developed.

Offshore geoscience surveys require authorizations from BOEM, pursuant to OCSLA. *See id*. § 1340. There is no requirement for an applicant for an offshore survey permit under OCSLA to obtain an incidental take authorization under the MMPA. However, unlawful "takes" of marine mammals incidental to lawful activities (such as a permitted offshore seismic survey) may nevertheless be subject to MMPA-based penalties. *See* 16 U.S.C. § 1375. Accordingly, many applicants for offshore survey permits from BOEM also request incidental (*i.e.*, unintentional) take authorization under the MMPA from the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service (FWS).[6]

In this context, it is important to recognize that the permit issued by BOEM authorizes the *seismic survey* and the MMPA authorization narrowly addresses the *incidental take* associated with the seismic survey. NMFS and FWS do not have jurisdiction over the survey; their authority under the MMPA extends only to the authorization of incidental take. Notwithstanding the limited role of FWS and NMFS, MMPA authorizations are often the primary cause of administrative delay in the offshore geoscience survey permitting process.

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[5] BOEM stated in its August 22, 2014 Science Note

[6] FWS has jurisdiction over polar bears, walrus, sea otters, dugongs, and manatees. NMFS has jurisdiction over all other marine mammals.

Specific to BOEM geoscience permitting, EnerGeo members have experienced certain ambiguities and identified areas that may make the permitting process run more efficiently in the following suggestions:

1. Industry finds the timeliness of the permit process for geoscience activities to be open-ended and uncertain. EnerGeo has recommended that BOEM establish a certain timeline for permit review and approval. The timing requirements for drilling permit review and approval is a good example that BOEM should strive to achieve for geoscience permits.
2. Industry has encouraged BOEM to explore the creation of an electronic permit application process. Efficiencies for permit processing and man-hours may be realized through electronic permit applications. Many countries around the world utilize electronic permit application processes. This allows the applicant to monitor the status of the permit process and timely provide any information requests from BOEM. This has been seen to drastically decrease the permit process timeline.
3. Geoscience operations are consistently utilizing the same vessels throughout the offshore U.S. BOEM should take steps to create a catalogue of vessel information and certificates to reduce permitting costs and burden hours.
4. Industry encouraged BOEM to develop a catalogue of equipment used in offshore geoscience activities, including Ocean Bottom Nodes, Ocean Bottom Cables, Streamers, etc. This would reduce the time needed to collect pictures and physical samples of all parts and equipment deployed in the water column. Permit applications could then reference these materials to reduce time spent.

Specific to NMFS MMPA authorization processes, EnerGeo members have experienced extensive delays and note the following particularly problematic areas:

1. IHAs involving offshore oil and gas-related activities are rarely, if ever, issued within the timing requirements of the MMPA. NMFS even states on its website that the IHA permitting process takes at least six to nine months to complete. The process often takes much longer. The MMPA provides no consequences for such delay, nor does it provide any incentives to NMFS and FWS to avoid delay.
2. Because the MMPA contains no timing requirements applicable to ITRs, the regulatory process for the issuance of ITRs often takes years and, in industry's view, is de-prioritized by the agencies because other agency obligations are subject to timing requirements and consequences.
3. The ESA Section 7 consultation process is cumbersome and time-consuming. The Section 7 process is also subject to statutorily mandated deadlines, but those deadlines are routinely ignored by NMFS and FWS without consequence. The Section 7 consultation process is often a significant cause of the delay in the issuance of an authorization under Section 101(a)(5) of the MMPA, even though the substantive standard governing the Section 7 process is *less stringent* than the MMPA's "negligible impact" standard.
4. Another significant source of delay in the issuance of MMPA incidental take authorizations involves the estimation of the number of "takes" that are expected to occur. Because the MMPA's definition of "take" is extraordinarily broad and ambiguous (more so than the ESA's definition of "take"), FWS and NMFS struggle to determine what activities actually cause "take" and, as a result, they apply extremely conservative assumptions to ensure that their "take" estimation modeling encapsulates all conceivable "take" (and more). This process results in estimates that are inaccurate and vastly exaggerate the number of "takes" that will actually occur.
5. The "take" estimation modeling exercises are considerably more complicated and play an unduly important role in the permitting process because the agencies are required to demonstrate that the incidental take authorization will not only have a "negligible impact" on the potentially affected marine mammal stocks but also affect "small numbers" of marine mammals. The term "small numbers" has no biological significance whatsoever to the marine mammal population and is a legal term of art that has notoriously confused courts and regulators alike.

6. All of these regulatory problems and inefficiencies create fertile ground for legal challenges by advocacy groups that will readily file any and all available lawsuits for the sole purpose of impeding and preventing the energy development of the OCS.

When it was enacted in the early 1970s (and subsequently amended), the congressional intent behind the MMPA was cutting-edge and forward-thinking. However, as described above, decades of regulation and litigation have exposed some significant flaws in the MMPA. The primary flaws in the MMPA stem from (i) poorly written statutory language that creates ambiguity and uncertainty in the application of the MMPA's legal standards, and (ii) procedural duplication and inefficiency. These flaws result in agency delays, overly conservative and inaccurate impact analyses, confusion by agencies and courts, and exploitation by environmental advocacy groups. Fixing some of the obvious flaws in the MMPA could result in tangible regulatory improvements that increase efficiency, decrease uncertainty and risk, and ultimately benefit all stakeholders and citizens and the implementing agencies.

The modeling exercises relied upon by BOEM and conducted by NMFS for incidental take regulations and authorizations often use a multiplicative series of conservatively biased assumptions for all uncertain parameter inputs. These assumptions lead to accumulating bias as the cumulative conservative assumptions add up to increasingly unlikely statistical probabilities that are not representative of real-world conditions. Consequently, the results are improbable worst-case scenarios, *not* accurate representations of likely effects.[7] Using more realistic risk criteria and modeling assumptions, and taking into account standard monitoring and mitigation practices employed by the geoscience industry, the more likely estimate of potential Level A takes is zero or a comparably small number. This more likely estimate is corroborated by the best available information, which includes no observations of any harm to marine mammal populations (in any region) as a result of seismic exploration activities. Importantly, the DC Circuit Court recently held that, ". . . implementing regulations call for an empirical judgment about what is "likely." The Service's role as an expert is undermined, not furthered, when it distorts that scientific judgment by indulging in worst-case scenarios and pessimistic assumptions to benefit a favored side",[8] agreeing that agencies shall adhere to the best available science.

Geoscience for Offshore Wind & Carbon Capture and Storage

The energy & geoscience industry is integral to meeting policies of lower carbon economies, including in the U.S. There are now 30 commercial operational CCS facilities worldwide that have a capture capacity of 40 (Million tons per annum), more than 20 have come online in the last 2 years. Over half of these are in North America. An additional 141 facilities are in development or under construction and will provide an additional 112 Mtpa of capture capacity by 2030, but to go "net zero" by 2050, these figures would need to grow 140X!

As these projects are developed it is critical that they are sited, designed, and managed in a manner that ensures and demonstrates the long-term technical and environmental integrity of the storage or sequestration. A vibrant geoscience industry is integral in meeting these lofty goals and well-defined efficient regulatory processes are required by U.S. and other policy makers.

In March 2021, the Biden administration has set an ambitious goal of deploying 30 gigawatts of offshore wind electricity generation by 2030.[9] Further, in April 2023 the President highlighted new steps the United States was taking to meet its ambitious 1.5°C-aligned goal of reducing emissions 50–52 percent in 2030. Noting it would "require responsible deployment of carbon capture, utilization, and storage (CCUS) and carbon dioxide removal (CDR) technologies . . . CCUS has a critical role to play in decarbonizing the global economy, particularly the industrial sector, where process emissions are more difficult to address."[10] These goals are simply not

[7] A technical critique of the agencies' flawed, overly conservative approach, as reproduced in BOEM's ITR petition for Gulf of Mexico activities, is provided in Attachment B.

[8] Maine Lobstermen's Association v. National Marine Fisheries Service, 70 F.4th 582 (2023) No. 22-5238

[9] FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/

[10] FACT SHEET: President Biden to Catalyze Global Climate Action through the Major Economies Forum on Energy and Climate https://www.whitehouse.gov/briefing-room/statements-

possible without the geoscience industry and the current regulatory delays and litigation impediments will disallow implementing the vast offshore wind and CCS needed.

Following this ambitious goal, the Administration mandated the Department of Interior to publish CCS regulations by November 2022, a deadline that was missed and is still outstanding. Policymakers should prioritize now the infrastructure required, including ensuring the efficient permitting of geoscience surveys needed for the identification and monitoring of the storage areas.

EnerGeo continues to call on BOEM and the current administration to propose long-overdue regulations for offshore Carbon Capture and Storage (CCS). Further, EnerGeo recently commented on BOEM's efforts to provide efficiencies in the regulations for development of offshore wind on the U.S. OCS for geoscience permitting. We strongly encourage BOEM to align regulations which currently exist or may be in development, which are specific to certain energy sources or low-carbon solutions; mainstay (gas and oil), alternative, carbon sequestration, marine minerals, and hydrogen, so that geoscience activities are analyzed and authorized under the same metrics.

Regulations should not be used to differentiate between given energy sources when it comes to permitting geoscience activities. Our members execute surveys and use advanced technology to provide products to energy developers and producers—those activities employ the same general techniques regardless of whether their clients are developing gas and oil or offshore wind, the regulations should not make a distinction either. There is currently estimated 6,300 square miles available in the Lower Miocene of GOM for offshore carbon capture capacity with capability to contain 100s of billions of tons of CO2 emissions.

The energy geoscience industry has recommended the following to BOEM on development of offshore CCS regulations:

Permitting Certainty

- Defined timelines on approving or denying requested permits.
- The process should not differ in a significant way from existing geoscience permitting processes for hydrocarbons.
- The geoscience industry has a long history of obtaining permits with the expectation that science-based mitigation measures will match the potential impacts from activities.
- The geoscience industry supports a research and evaluation phase, pre-leasing.

Lease Rounds

- Regularly held, predictable and well-defined lease rounds should be held for CCS, if existing hydrocarbon leases will not be available for CCS. Clarity from the agencies is required on how leasing will be conducted for CCS.
- Recognition by BOEM and Federal Agencies of the critical role of existing geoscience data available for licensing and for bidding on CCS—and avoid disclosure of confidential industry intellectual property.
- Lease lengths should be consistent with hydrocarbon leases.

On-Lease

- Once leases have been awarded, or CCS work programs are being developed, requirements for geoscience data to confirm geological stability and for carbon injection should be included.
- Monitoring requirements throughout the lease term will require geoscience activity to confirm safe injection and stability of depleted reservoirs and/or aquifers.

Post-Lease

- Following the expiration of a lease term, continued monitoring of the injection site will be required.
- Liability should be borne by the Federal Government, ie: Plume Leaks. At no time should liability surrounding the sequestration site be placed on geoscience companies providing data to the leaseholders or the government.

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releases/2023/04/20/fact-sheet-president-biden-to-catalyze-global-climate-action-through-the-major-economies-forum-on-energy-and-climate/

Conclusion

By 2050 the world population will increase to 9.8 billion and total energy use is expected to increase by 34 percent. The projected energy mix to meet this demand; 22% natural gas, 20% coal, 28% petroleum and other liquids, 4% nuclear, and 26% alternatives. With the current global energy supply crisis, a growing population and inflation on the rise, citizens around the world will need greater access to reliable and affordable energy, including petroleum and natural gas, as well as alternative energies.

The energy geoscience industry has always been in the business of minimizing the footprint, by pinpointing where the resource is and importantly where it is not, allowing companies and policymakers to identify and prioritize high-density, low-carbon intensive energy sources, closer to existing infrastructure and the end user, locating where offshore wind facilities are best suited for harnessing the energy from wind, prolonging the life of existing natural gas and petroleum assets, and making it possible to store carbon beneath the surface. Geoscience surveys provide the information governments and policymakers need to make informed decisions in the best interest of their citizens regarding accessing mainstay energy and alternative sources, as well as developing low-carbon strategies. As nations develop and implement their energy evolution goals to make reliable, affordable energy available to their citizens and meet Net Zero Emissions (NZE) policy ambitions, it is important to understand that those goals cannot and will not be realized without the critical data and technology the geoscience industry provides.

At EnerGeo we are advocating to ensure all policymakers and energy companies have access to reliable data and analysis to support their forward-moving efforts.

With an increasing need for energy from all sources, many predict the energy industry is at the start of an "international upcycle." Where the industry invests now will be influenced by where they have access to insight (data), infrastructure and supportive regulatory and policy structures.

We urge Congress to review the MMPA and pass meaningful reform, that will rectify the existing delays for geoscience survey authorizations and urge the administration to implement regulations to provide for efficient carbon capture and storage projects on the OCS. Streamlining the permitting process along with reducing the ability for outside special interest groups to obstruct energy exploration is a necessary step to ensure our continued development of energy resources and low carbon solutions for future generations in the U.S.

Thank you for the opportunity to testify today.

QUESTIONS SUBMITTED FOR THE RECORD TO MR. JOE DRYER, PRESIDENT & CEO, FAIRFIELD GEOTECHNOLOGIES

Questions Submitted by Representative Fulcher

Question 1. Can you discuss the latest technological advancements in seismic surveying and how they can improve the accuracy and depth of offshore energy resource assessments?

Answer. The geoscience industry, through a global competitive market, continually advances technologies to better image the subsurface. Our industry is made up of technology companies that utilize computer processing capabilities second only to the U.S. military, allowing for ever faster processing times and delivery of more accurate imaging of the globes subsurface.

In the recent past, the industry has been deploying ocean bottom nodes (OBN) and at an increasing pace the industry uses remote operated vehicles (ROV) or autonomous underwater vehicles (AUV) to place the nodes. The use of nodes, to receive the sound refraction from below the surface, allows for vast areas to be covered by data acquisition through fewer vessels on the surface. Further, acquiring data through use of nodes allows for larger offsets (wider angle) which has shown an increase in image quality and accuracy.

The geoscience industry is conducting 4D (time) surveys at a higher rate than in the past, allowing for the extension of the life of oil and natural gas producing basins, ensuring the industry is targeting energy dense resources with lowest footprint possible. Additionally, 4D surveys are the only viable solution to monitoring

sites for CO2 injection to ensure the carbon remains in the targeted location and whether the plume is migrating over time.

Further, advances in geoscience sources (compressed air sources) are allowing the industry to focus the sound produced at the lower frequencies which removes various marine life species from possible exposure to sound generated by our industry's activities. It is important to note here, as I included in my testimony, more than six decades of worldwide geoscience surveying and scientific research demonstrate that the risk of direct physical injury to marine mammals is extremely low, and there is no scientific evidence demonstrating biologically significant negative impacts on marine life populations. Geoscience survey activities are temporary and transitory, and are the most effective way to explore the earth's geology. In the more than 60 years of seismic surveying in the Gulf of Mexico, there has not been a single reported incidence of sound from seismic operations injuring marine life.

Today's advancements in technology, which can pinpoint the most fruitful areas for hydrocarbon potential, siting of wind turbines offshore and locating areas for carbon storage, have contributed to reducing the overall environmental footprint associated with energy exploration. Advances in the technology we deploy have also helped to decrease operational and safety risks associated with energy development.

Question 2. From your perspective, what are the major hurdles in conducting more comprehensive and up-to-date seismic surveys for the OCS and how might these be overcome?

Answer. Without question, the major hurdle to conducting a more comprehensive and up-to-date geoscience library evaluating the resources for the U.S. OCS, is bureaucratic delays and duplicative processes for permitting and environmental authorizations with little to no benefit for the marine environment and marine life. Unfortunately, the permitting of this activity critical to identifying the nation's energy supplies is too often stalled or impeded by groups opposed to the identification/imaged (mapped) energy source—whether wind, petroleum or natural gas—exploiting existing regulatory and litigation processes.

Starting at page 4 in my written testimony, "BOEM Permitting & NMFS Authorization Delays", I provide detailed explanation of current hurdles to permitting, and suggestions on how the processes could be more efficient. Fairfield Geotechnologies, through our participation in the EnerGeo Alliance, urges Congress to pass legislation to ameliorate the redundant processes such as the duplicative authorizations/consultation required within the Marine Mammal Protect Act (MMPA) and Endangered Species Act (ESA), which have twisted those statutes into something never intended resulting in ambiguity, uncertainty and costly delays in the permitting process.

Mr. ROSENDALE. I thank Mr. Dryer for his testimony. Our final witness is Mr. Kendall Dix, and he is the National Policy Director for Taproot Earth, and is stationed in Charlottesville, Virginia.

Mr. Dix, you are now recognized for 5 minutes.

STATEMENT OF KENDALL DIX, NATIONAL POLICY DIRECTOR, TAPROOT EARTH, CHARLOTTESVILLE, VIRGINIA

Mr. DIX. Hello. Thank you for inviting me here today to testify in front of this Committee. I will read a brief statement here, but have submitted a longer statement for inclusion in the record.

My name is Kendall Dix. As a former career line cook in New Orleans, I have vivid memories of my time as a low-wage worker who was forced to work through hurricane evacuations while my family begged me to leave. Through my later work as a sustainable fisheries advocate, and then an organizer working in the industrial corridor along the Mississippi River, an area infamously known as Cancer Alley, I am all too aware of the oil and gas industry's impact on the people and the environment of the Gulf Coast. The oil and money flow out while the pollution remains; the people get poorer and sicker; and the climate disasters get worse every year.

I am now a policy specialist at Taproot Earth, a global climate justice organization rooted in Slidell, Louisiana. We work with communities across 18 states, from the Gulf south, up through Appalachia, and across the globe. We evolved out of an organization called the Gulf Coast Center for Law and Policy, which was founded in the aftermath of Hurricane Katrina, a climate disaster that killed thousands of people and changed the Gulf south region forever. Taproot Earth is an organization that works with communities to advance solutions around essential resources such as water, energy, and land to ensure that we can address climate change in an ecological and holistic way.

I am honored, excited, and extremely nervous to testify in front of you today, but I am also a bit tired. I am tired and frustrated that somebody from the climate and environmental world is again being asked to convince you that oil and gas extraction is harming people on the planet, and that we should actually do something to change it. I am exhausted from seeing good people attend funeral after funeral of their loved ones in Cancer Alley, while policymakers insist that nothing can be done to permit their premature deaths.

At every stage of its life cycle, from when it is extracted to when it is refined, burned, and/or transformed into forever chemicals that may never break down, oil and gas is toxic to human health and the environment. Not only are these impacts making the planet unlivable, they are disproportionately harming poor, rural, Black, Indigenous, and communities of color who have already suffered under centuries of systemic discrimination in this country. To continue leasing oil and gas extraction in the Gulf of Mexico is to continue sacrificing the region.

As an organization, Taproot Earth works for climate justice. That does mean phasing out fossil fuels, but it also means simultaneously addressing the legacies of racism and domination. We are working for a world in which we can all live, rest, and thrive in the places we call home. However, most of the people I know and love in this world live in south Louisiana. Between catastrophic storms, skyrocketing insurance rates, poor water quality, extreme heat waves, and school and housing closures, the climate crisis is displacing people right now. The problem is even worse than we thought.

The good news is that we now have viable alternatives to oil and gas, such as wind and solar, that will reduce our energy system's impact on the environment and make our region more resilient to climate disruption. However, oil and gas infrastructure can directly compete with or block these solutions. Simply put, you cannot build a wind turbine or run a transmission cable through an active oil and gas pipeline without risking another catastrophic oil spill.

More than 18,000 miles of pipelines lie abandoned in the sea floor, in addition to 2,700 wells and 500 drilling platforms. The Government Accountability Office recently released two harrowing reports that show the Federal Government has failed for years to stop polluters from littering our public lands and waters with their garbage. While some parts of energy policy can be technical or complicated, making sure companies clean up their mess is not one of those issues.

The time has long passed for us to move away from energy sources that poison our people and planet. We can build a world that upholds the rights of everyone to have clean air to breathe, clean water to drink, and no more abandoned wells and pipelines in the oceans. However, that world does not include additional fossil fuel extraction.

Thank you for the opportunity to testify.

[The prepared statement of Mr. Dix follows:]

PREPARED STATEMENT OF KENDALL DIX, NATIONAL POLICY SPECIALIST, TAPROOT EARTH

Dear Committee Members, my name is Kendall Dix. As a former career line cook in New Orleans, I have vivid memories of time as a low wage worker who was forced to work through hurricane evacuations while my family begged me to leave. Through my later work as a sustainable fisheries advocate and then an organizer working in the industrial corridor along the Mississippi River—an area infamously known as Cancer Alley—I am all too aware of the oil and gas industry's impact on the people and environment of the Gulf Coast. The oil and money flow out, while the pollution remains, the people get poorer and sicker, and the climate disasters get worse every year.

I'm now a policy specialist at Taproot Earth, a global climate justice organization rooted in Slidell, Louisiana. We work with communities across 18 states from the Gulf South up through Appalachia and across the globe. We evolved out of an organization called the Gulf Coast Center for Law and Policy, which was founded in the aftermath of Hurricane Katrina, a climate disaster that killed thousands of people and changed the Gulf South region forever. Taproot Earth is an organization that works with communities to advance solutions around essential resources such as water, energy, and land to ensure that we can address climate change in an ecological and holistic way.

I am honored, excited, and nervous to testify in front of you today, but I am also a bit tired. I'm tired and frustrated that somebody from the climate and environmental world is again being asked to convince you that oil and gas extraction is harming people and the planet and that we should actually do something to stop it. I am exhausted from seeing good people attend funeral after funeral of their loved ones in Cancer Alley while policymakers insist that nothing can be done to prevent their premature deaths.

At every stage of its life cycle from when it is extracted to when it is refined, burned, and/or transformed into forever chemicals that may never break down, oil and gas is toxic to human health and the environment. Not only are these impacts making the planet unlivable, they are disproportionately harming poor, rural, Black, Indigenous, and communities of color who have already suffered under centuries of systemic discrimination in this country. To continue leasing oil and gas extraction in the Gulf of Mexico is to continue sacrificing the region. As an organization, Taproot Earth works for climate justice. That does mean phasing out fossil fuels, but it also means simultaneously addressing the legacies of racism and domination, so we can all live, rest, and thrive in the places we call home. Most of the people I know and love in this world live in South Louisiana. Between catastrophic storms, skyrocketing insurance rates, poor water quality, extreme heat waves, and school and housing closures, the climate crisis is displacing people now. The problem is even worse than we thought.

The good news is that we now have viable alternatives to oil and gas, such as wind and solar, that will reduce our energy system's impacts on the environment and make our region more resilient to climate disruption. However, oil and gas infrastructure can directly compete with or block these solutions. You cannot build a wind turbine or run a transmission cable through an oil and gas pipeline without risking another catastrophic oil spill.

More than 18,000 miles of pipelines lie abandoned in the sea floor, in addition to 2,700 wells and 500 drilling platforms. The Government Accountability Office recently released two harrowing reports that show the federal government has failed for years to stop polluters from littering our public lands and waters with their

garbage.[1,2] While some parts of energy policy can be technical or complicated, making sure companies clean up their mess is not one of those issues.

The time has long passed for us to move away from energy sources that poison our people and planet. We can build a world that upholds the rights of everyone to have clean air to breathe, clean water to drink, and no more abandoned wells pipelines in the oceans. That world does not include more fossil fuel extraction.

Impacts of Oil and Gas Development on the Gulf of Mexico

The storm surge that made Hurricane Katrina so devastating was a direct result of the damage caused by decades of oil and gas extraction and its associated pipelines that destroy coastal wetlands and cause sea level rise through the burning of fossil fuels. Emissions drive ocean acidification as well as deadly methane and other toxic pollution. Further, there are documented slow leakages and pipeline accidents related to associated infrastructure, and property values near these sites continue to decrease. Addressing climate change now by ceasing to extract fossil fuels would be just the first step toward repairing the harm the industry has wrought.

Abandoned Oil and Gas Infrastructure: Since the 1960s, the Bureau of Safety and Environmental Enforcement (BSEE) has allowed the offshore oil and gas industry to leave 97% of pipelines (18,000 miles) on the seafloor when no longer in use.[3] As mentioned above, this aging oil and gas infrastructure inhibits the development of offshore wind. Unfortunately, many companies who own offshore oil rigs at the end of their life cycle are no longer financially solvent.[4] To make sure this doesn't happen in the future, the Department of Interior (DOI) must end the practice of allowing lessees and Right of Way holders to decommission pipelines in place. The DOI must require that all pipelines be removed and operators clear the seafloor of all obstructions created by the lease and the pipeline right-of-way operations.

DOI should also complete and issue its financial assurance rulemaking and require lessees to hold fully vested trust funds and/or a sinking trust fund and supplemental financial assurance for all infrastructure and wells. The recent Fieldwood Bankruptcy and the still existing gap between the cost to decommission all associated infrastructure reveals an eminent crisis if not met with appropriate government actions. The government must require cash on hand to cover asset retirement obligations if companies seek to profit from the collective resources of the U.S.

For infrastructure in the ocean that has already been decommissioned in place, the Secretary of Interior should order all lessees to remove the pipelines immediately.[5] 30 CFR § 250.1754 establishes clear authority to the BSEE Regional Supervisor to order the removal of a pipeline decommissioned in place if that pipeline constitutes an obstruction. These pipelines provide no physical or material benefit to the American public, but they do impose an artificial limit on how much area can be available for offshore wind development.

We recommend the establishment of an "Idle Iron Pipeline" program to make this administratively feasible. The Department should identify which of the 18,000 miles of decommissioned pipelines in place obstruct future offshore wind, and prioritize their expedient removal. If the lessees are not financially solvent, DOI should be funded to remove this infrastructure itself, and Congress should fund this activity with a tax on companies that benefit from offshore oil and gas drilling. Anything less than aggressively removing oil and gas infrastructure no longer in use delays the buildout of American offshore wind and functions as a de facto subsidy to the oil and gas industry.

Unfortunately, offshore oil and gas infrastructure and proposed development in federal waters hinder transition to renewable sources. For example, oil and gas rigs require a 500-ft setback for and active oil pipelines require a 200-ft setback as noted in a July 2022 memo by Michael Celata, BOEM's Gulf of Mexico Regional Director.[6]

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[1] U.S. Government Accountability Office, "Offshore Oil and Gas: Interior Needs to Improve Decommissioning Enforcement and Mitigate Related Risks," January 2024, https://www.gao.gov/assets/d24106229.pdf

[2] U.S. Government Accountability Office, "Oil and Gas Pipelines: Agencies Should Improve Oversight of Decommissioning," January 18, 2024, https://www.gao.gov/assets/d24106444.pdf.

[3] U.S. Government Accountability Office, "Offshore Oil and Gas: Updated Regulations Needed to Improve Pipeline Oversight and Decommissioning," March 19, 2021, https://www.gao.gov/products/gao-21-293.

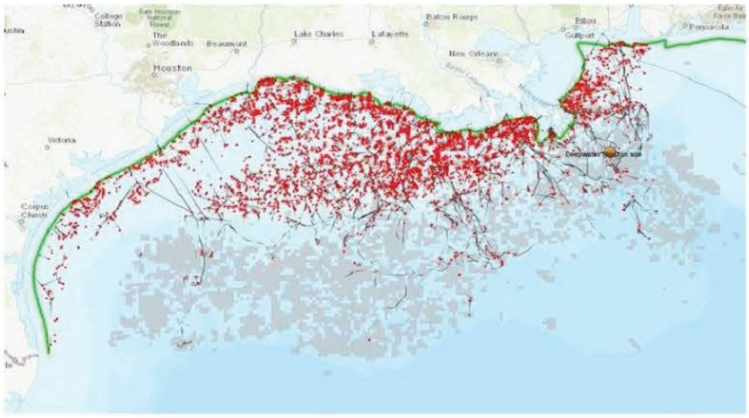
[4] Wolf, Alex, "Bankruptcies Fueling Environmental Crisis at Abandoned Oil Wells," Bloomberg Law, September 2, 2021, https://news.bloomberglaw.com/bankruptcy-law/bankruptcies-fueling-environmental-crisis-at-abandoned-oil-wells.

[5] 30 CFR § 250.1754.

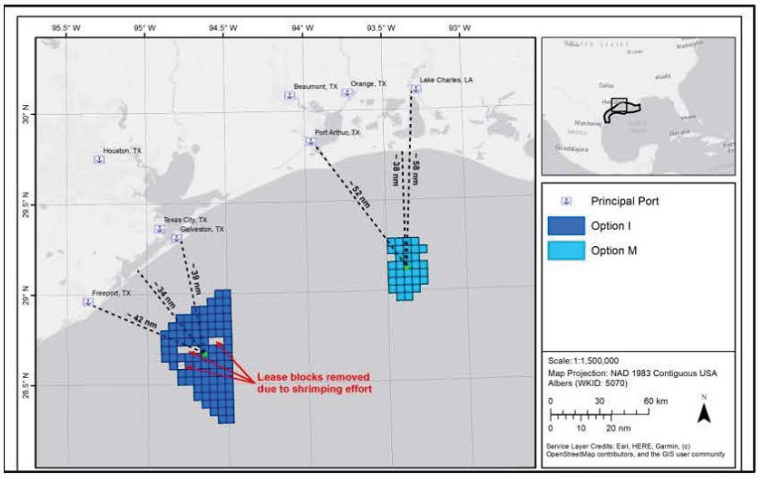
[6] Celata, Michael, "Request for Concurrence on Preliminary Wind Energy Areas for the Gulf of Mexico Area Identification Process Pursuant to 30 C.F.R. § 585.211(b)," Memorandum dated

This makes sense because interactions between turbines and oil rigs/pipelines could cause oil spills or other dangerous disasters, but it also means that you can't build anything—including offshore wind infrastructure anywhere near oil infrastructure. With so much oil and gas infrastructure in the Gulf of Mexico, otherwise viable wind energy areas have been and will continue to be limited.

This is a map of oil and gas drilling platforms both historical and active, pipelines, and active leases in the Gulf of Mexico:[7] It affirms that Southeastern Louisiana has far too much oil and gas infrastructure for wind energy to be developed safely:



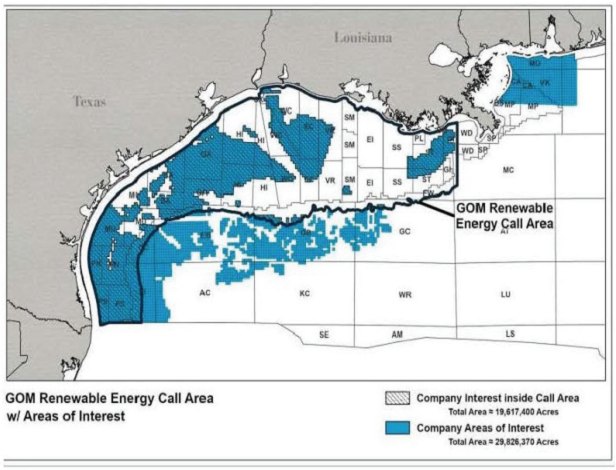
For reference, here are the Wind Energy Areas that BOEM chose:



July 20, 2022, p. 13, https://www.boem.gov/sites/default/files/documents//Draft%20Area%20ID%20Memo%20GOM%20508.pdf.

[7] Fracktracker, Oil and Gas Infrastructure in the Gulf of Mexico https://maps.fractracker.org/latest/?appid=0b3260e4417d4299b750b6b2447d7f33.

Here is a map of industry interest from the July 20 Bureau of Ocean Energy Management (BOEM) memo:[8]



Comments by regional director Celata at an August 22, 2022 meeting hosted by BOEM confirm what these maps indicate. Celata was asked directly whether oil and gas infrastructure that had been decommissioned in place was inhibiting offshore wind development. He answered that the proposed Wind Energy Areas (WEAs) were selected because wind companies would be able to run new infrastructure "around" the existing oil infrastructure to the shore, unlike most of the rest of the coast which is too thick with oil gear to make it practicable.

Further, BOEM has made previous decisions to site oil and gas infrastructure in southeast Louisiana, and we can only conclude that these decisions are a direct cause of the region not being selected by BOEM for offshore wind development. As BOEM may begin to permit dangerous and unnecessary offshore carbon capture and storage infrastructure, these pipeline conflicts will only continue to grow. This is particularly troubling because the Gulf of Mexico has some of the highest net technical wind energy potential of any region.[9] Taproot Earth's view is that carbon capture and storage is a false solution that will extend the life of fossil fuels and dump more pollution in overburdened frontline communities.

Ocean Acidification: The emissions from oil and gas extraction are fueling the acidification of the ocean.[10] The risks to marine goods and services amplify with increasing acidification causing shifts to macroalgal dominance, habitat degradation and a loss of biodiversity at seep sites in the tropics, the sub-tropics and on temperate coasts.[11] Based on this empirical evidence, scientists expect ocean acidification to have serious consequences for all of us who are dependent on coastal protection, fisheries and aquaculture.[12] If we don't stop extracting fossil fuels, we risk the collapse of ocean ecosystems.

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[8] Celata, Michael, "Request for Concurrence on Preliminary Wind Energy Areas for the Gulf of Mexico Area Identification Process Pursuant to 30 C.F.R. § 585.211(b)," Memorandum dated July 20, 2022, p. 32, https://www.boem.gov/sites/default/files/documents//Draft%20Area%20ID%20Memo%20GOM%20508.pdf.

[9] Lopez, Anthony et al. "Offshore Wind Energy Technical Potential for the Contiguous United States, National Renewable Energy Laboratory, August 15, 2022, https://www.nrel.gov/docs/fy22osti/83650.pdf.

[10] Xiangfeng Zeng, Xijuan Chen, Jie Zhuang, "The positive relationship between ocean acidification and pollution," Marine Pollution Bulletin, Volume 91, Issue 1, 2015, Pages 14-21, ISSN 0025-326X, https://doi.org/10.1016/j.marpolbul.2014.12.001.

[11] Jason M. Hall-Spencer, Ben P. Harvey; Ocean acidification impacts on coastal ecosystem services due to habitat degradation. Emerg Top Life Sci 10 May 2019; 3 (2): 197-206. doi: https://doi.org/10.1042/ETLS20180117.

[12] Id.

Drilling Disasters: Offshore oil drilling can lead to catastrophic drilling disasters, such as the BP Drilling Disaster of 2010.[13] The BP disaster directly killed 11 human beings and millions of living creatures that live in or around the Gulf of Mexico. In total, it caused an estimated $17.2 billion in damage to the Gulf of Mexico ecosystem.[14] The BP drilling disaster is an example of the catastrophic damage done when offshore drilling goes wrong, but even without gross negligence and recklessness, offshore drilling has negative impacts on the marine, coastal and human environments.

Slow Leakage of Oil and Gas at Drill Sites: In 2018, scientists discovered that a 14-year-old oil spill owned by Taylor Energy was leaking much more oil than previously thought.[15] Taylor had been caused by a hurricane-induced mudslide. Taylor Energy tried to cover up the spill, and it was mostly ignored by regulators until citizen scientists visually documented the spill's oil sheen during a monitoring flight in 2010. Oil spills caused by hurricanes are a guaranteed outcome when you permit oil and gas infrastructure in the Gulf of Mexico.

Emissions from Normal Operations: Methane, a powerful greenhouse gas, is an inevitable byproduct of oil and gas extraction. Each year, oil and gas operations emit an amount of methane that is equivalent to 211 million metric tons of carbon dioxide, or about 4 percent of total U.S. emissions.[16] Even when operations are going well, the extraction sector is a major contributor to the climate crisis before the fuels are even burned.

Pipeline accidents: Offshore oil drilling requires the building of pipelines to move the oil and gas onshore where it reaches refineries and other pipeline networks. These pipelines leak and sometimes explode. Over 2,600 hazardous gas pipeline leaks in the United States caused more than $4 billion in damages and emergency services, killed 122 people, and released 26.6 billion cubic feet of fuel as methane or carbon dioxide over a 10 year period.[17] The only way to prevent these accidents from happening is to stop extracting oil and gas and transporting it via pipeline.

Other toxic emissions: After oil and gas is extracted from the Gulf of Mexico, it arrives onshore for refining. The family of products derived from oil and gas is vast. It includes gasoline, plastics, fertilizers, and more.[18] The factories where these products are refined are located all over the country, but they are heavily concentrated in the Gulf South and other places near the sites of extraction.[19] While Black and Hispanic people suffer nearly 48 percent of the pollution exposure from such sites, they receive barely a fifth of the total jobs.[20] The disparity is particularly pronounced in the oil and gas industry, especially for Black workers, who hold just 9 percent of the jobs in oil and gas extraction and earn 23 percent less than their white counterparts.[21] Race—not poverty—is the strongest predictor of exposure to

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[13] Department of Justice, "U.S. and Five Gulf States Reach Historic Settlement with BP to Resolve Civil Lawsuit Over Deepwater Horizon Oil Spill," October 15, 2015, https://www.justice.gov/opa/pr/us-and-five-gulf-states-reach-historic-settlement-bp-resolve-civil-lawsuit-over-deepwater.

[14] Bishop, R.C. et al."Putting a value on injuries to natural assets: The BP oil spill," Science 356(6335), 2017, doi:10.1126/science.aam8124

[15] Dears, Darryl, "A 14-Year-Long Oil Spill in the Gulf of Mexico Verges on Becoming One of the Worst in US History," The Washington Post, October 23, 2018, https://www.agricanto.org/uploads/5/2/6/3/52634281/a_14-year-long_oil_spill_in_the_gulf_of_mexico.pdf.

[16] United States Environmental Protection Agency, "Estimates of Methane Emissions by Segment in the United States (2020)," https://www.epa.gov/natural-gas-star-program/estimates-methane-emissions-segment-united-states

[17] Dutzik, Tony, Abraham Scarr, and Matt Casale, "Methane Gas Leaks: Frequent leaks are resulting in death, injury and other damage to our health and environment," U.S. PIRG, Environment America, and Frontier Group, June 2022, https://publicinterestnetwork.org/wp-content/uploads/2022/05/USP-EA-FG-Methane-Gas-Leaks-Jun22-screen_0.pdf

[18] Department of Energy, "Products Made From Oil and Gas," https://www.energy.gov/sites/prod/files/2019/11/f68/Products%20Made%20From%20Oil%20and%20Natural%20Gas%20Infographic.pdf.

[19] Shaw, Al, Lylla Younes and Ava Koffman, "The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S.," ProPublica, November 2, 2021, https://projects.propublica.org/toxmap/.

[20] Neuhauser, Alan, "Minority Communities Near Industrial Sites Get Pollution, Not Jobs," US News and World Report, October 1, 2018, https://www.usnews.com/news/national-news/articles/2018-10-01/minority-communities-near-industrial-sites-get-pollution-not-jobs.

[21] Id.

PM 2.5, a health-damaging particle created when fossil fuels are burned.[22] Environmental racism is baked into the fossil fuel extraction industry and its downstream toxic affiliates.

Decreased property values: Home prices along the Gulf Coast are already much lower than on the Pacific or Atlantic Coasts.[23] This makes sense given the amount of fossil fuel extraction along the Gulf Coast.[24]

We know that fossil fuel development can cause property values to fall. Applying a research design based on the openings and closings of 1,600 industrial plants to rich data on housing markets and infant health, one study found that plant openings lead to 11 percent declines in housing values within 0.5 mile.[25] The same study found that a plant's operation is associated with a roughly 3 percent increase in the probability of low birth weight within 1 mile. It reasons that people don't want to live near fossil fuel infrastructure because they correctly associate it with poor health impacts. In order to protect people's health and wealth stored in the value of their homes, BOEM should cease permitting new fossil fuel infrastructure.

Land loss: Oil and gas extracted offshore must eventually come onshore for processing and transportation via pipeline. The building of pipelines requires digging up the earth to bury them. In coastal habitats, this can lead to land loss. In Louisiana, Outer Continental Shelf pipelines covered 480 square miles of wetlands and land, and the navigation channels covered 137 square miles, representing about 11 percent of the Louisiana coast.[26] The construction of pipelines related to oil and gas production in the Outer Continental Shelf of the Gulf of Mexico "can cause locally intense habitat changes, thereby contributing to the loss of critically important land and wetland areas."[27] Louisiana has now lost more than 2,000 miles of land, roughly equivalent to the state of Delaware.[28] The National OCS Oil and Gas Leasing Program is directly responsible for a portion of this land loss.

Land loss makes the region more vulnerable to hurricanes, as we saw during Hurricanes Katrina, Ida and others. When Hurricane Ida struck in 2021, it remained a Category 3 hurricane long after "landfall" because so little land was left to stop the storm.[29] When those hurricanes hit, they can cause spills at the toxic facilities that process oil and gas. After Hurricane Ida, there were more than 2,000 chemical spills.[30] New oil and gas extraction would only make future impacts worse.

Fossil fuels are primarily extracted to be burned for energy. When they are burned, they create toxic pollution. Exposure to this pollution causes lung cancer.[31] Like other forms of pollution, this air pollution from burning fossil fuels disproportionately impacts poor people and people of color.[32]

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[22] Mikati, Ihab et al. "Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status," American Journal of Public Health 108, 2018, p. 480-485, https://doi.org/10.2105/AJPH.2017.304297.

[23] National Association of Realtors, "County Median Home Prices

[24] US Minerals Management Service, " http://www.mms.gov/ld/PDFs/OCSstatusMap8e(3).pdf

[25] Currie J. et al. "Environmental Health Risks and Housing Values: Evidence from 1,600 Toxic Plant Openings and Closings." Am Econ Rev. 2015 Feb;105(2):678-709. doi: 10.1257/aer.20121656. PMID: 27134284; PMCID: PMC4847734.

[26] Johnston, James & Cahoon, Donald & La Peyre, Megan, "Outer Continental Shelf (OCS)-Related Pipelines and Navigation Canals in the Western and Central Gulf of Mexico: Relative Impacts on Wetland Habitats and Effectiveness of Mitigation." U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico Region, New Orleans, LA. OCS Study MMS 2009-048. 200 pp.

[27] Id.

[28] United States Geological Service, "Louisiana's Changing Coastal Wetlands," July 12, 2017, https://www.usgs.gov/news/national-news-release/usgs-louisianas-rate-coastal-wetland-loss-continues-slow

[29] Pappas, Stephanie, "Why did Hurricane Ida stay so strong for so long?," Live Science, August 30, 2021, https://www.livescience.com/hurrixacane-ida-brown-ocean.html.

[30] Baurick, Tristan, "Reports of Hurricane Ida oil, chemical spills escalate in Louisiana waters," nola.com, September 8, 2021, https://www.nola.com/news/environment/article_0d4b138c-10dc-11ec-8269-cfc16666a808.html.

[31] Chen G et al. "Traffic-related air pollution and lung cancer: A meta-analysis," Thorac Cancer, 2015 May;6(3):307–18. doi: 10.1111/1759–7714.12185. Epub 2015 Apr 24. PMID: 26273377; PMCID: PMC4448375.

[32] Park YM, Kwan MP. Understanding Racial Disparities in Exposure to Traffic-Related Air Pollution: Considering the Spatiotemporal Dynamics of Population Distribution. Int J Environ Res Public Health. 2020 Feb 1;17(3):908. doi: 10.3390/ijerph17030908. PMID: 32024171; PMCID: PMC7037907.

Pollution from oil and gas derivatives: Oil and gas is used to make plastics, which are harmful to human health at every stage of their life cycles.[33] Once plastic reaches the environment in the form of macro or microplastics, it slowly fragments into smaller particles, where it contaminates all areas of the environment (air, water, and soil), accumulates in food chains, and releases toxic additives or concentrates additional toxic chemicals in the environment, making them bioavailable again for direct or indirect human exposure.[34] This affects cardiovascular, renal, gastrointestinal, neurological, reproductive, and respiratory systems, impacts include cancers, diabetes, neuro-, reproductive, and developmental toxicity.[35]

Per- and polyfluoroalkyl substances (PFAS) are chemicals that are a part of the plastics family. PFAS are synthetic substances that are toxic in minuscule amounts and do not break down in the environment.[36] They end up in the water supply, eventually accumulating in the human body over time and causing a range of serious health effects.[37] These "forever chemicals" are used in fracking fluid for oil and gas, including in offshore oil drilling in the Gulf of Mexico, where they escape to the broader environment.[38]

Chemical fertilizers are responsible for 2.4 percent of global emissions, or more than the aviation industry.[39] Fertilizers are derived from oil and gas and processed in highly toxic and greenhouse gas-intensive refineries.[40] About 20 percent of these nutrients are lost to runoff or leach into the groundwater.[41] This nutrient pollution eventually flows to the ocean where it fuels harmful algae blooms that kill marine life through hypoxia and/or produce airborne toxins that cause diseases in human beings.[42] Meanwhile, the excess nitrogen and phosphorus in the groundwater leads to a variety of human health problems including blue baby syndrome.[43] Nutrient pollution threatens the future of wild capture fisheries and sustainable aquaculture, endangering the nation's food security.

Pesticides are hazardous to human, biodiversity, and ecosystem health.[44] Many pesticides such as neonicotinoids, pyrethryoids, and glyphosate formulants are produced from gas and oil. They cause cancer in human beings.[45]

Ecosystem services: The Gulf of Mexico has multiple important other uses of the sea and seabed, including fisheries, tourism and recreation, shipping, and other anticipated uses such as offshore wind or offshore carbon capture and storage. Offshore oil production conflicts with all of them. The natural environment of the Gulf of Mexico provides numerous valuable ecosystem services,[46] including:

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[33] Azoulay, David et al. "Plastic & Health The Hidden Costs of a Plastic Planet," February 2019, https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf.

[34] Id.

[35] Id.

[36] Kelso, Matt, "Mapping Pfas: Forever Chemicals In Oil & Gas Operations," Fractracker Alliance, July 15, 2021, https://www.fractracker.org/2021/07/mapping-pfas-forever-chemicals-in-oil-gas-operations/

[37] Id.

[38] Center for Biological Diversity, "Toxic Waters: How Offshore Fracking Pollutes the Gulf of Mexico," July 2021, https://www.biologicaldiversity.org/campaigns/fracking/pdfs/Toxic-Waters-offshore-fracking-report-Center-for-Biological-Diversity.pdf.

[39] Huber, Bridget, "Report: Fertilizer responsible for more than 20 percent of total agricultural emissions," FERN, November 1, 2021, https://thefern.org/ag_insider/report-fertilizer-responsible-for-more-than-20-percent-of-total-agricultural-emissions/.

[40] Chai, R., Ye, X., Ma, C. et al. Greenhouse gas emissions from synthetic nitrogen manufacture and fertilization for main upland crops in China. Carbon Balance Manage 14, 20 (2019). https://doi.org/10.1186/s13021-019-0133-9

[41] Howarth, R. et. al, "Ecosystems and Human Wellbeing: Policy Responses," Millennium Ecosystem Assessment (MA), Volume 3. Chapter 9: Nutrient Management: pp. 295-311.

[42] National Oceanic and Atmospheric Association, "What is a harmful algae bloom?" https://www.noaa.gov/what-is-harmful-algal-bloom.

[43] Knobeloch, L. et al. "Blue babies and nitrate-contaminated well water." Environmental health perspectives, vol. 108,7, 2000, 675-8. doi:10.1289/ehp.00108675.

[44] Demeneix BA. How fossil fuel-derived pesticides and plastics harm health, biodiversity, and the climate. Lancet Diabetes Endocrinol. 2020 Jun;8(6):462-464. doi: 10.1016/S2213-8587(20)30116-9. PMID: 32445732; PMCID: PMC7239621.

[45] Bassil KL, et al. "Cancer health effects of pesticides: systematic review," Can Fam Physician. 2007 Oct;53(10):1704-11. PMID: 17934034; PMCID: PMC2231435.

[46] "5 Ecosystem Services in the Gulf of Mexico." National Research Council. 2013. An Ecosystem Services Approach to Assessing the Impacts of the Deepwater Horizon Oil Spill in the Gulf of Mexico. Washington, DC: The National Academies Press. doi: 10.17226/18387.

National Academies of Sciences, Engineering, and Medicine. 2013. An Ecosystem Services Approach to Assessing the Impacts of the Deepwater Horizon Oil Spill in the Gulf of Mexico. Washington, DC: The National Academies Press. https://doi.org/10.17226/18387.

Supporting services (nutrient balance, hydrological balance, biological interactions, and soil and sediment balance); Regulating services (pollutant attenuation, water quality, gas regulation, climate regulation, hazard moderation); provisioning services (air supply, water quantity, food, raw materials, medicinal resources, ornamental resources); and cultural services (aesthetics and existence, spiritual and historic, science and education, recreational opportunities).

These ecosystem services are provided "for free" by nature but provide economic benefit to other sectors. Some of these benefits such as fisheries landings or the tourism industry can be more easily quantified. In 2003, one study estimated that the Gulf of Mexico ocean economy generated an estimated $32 billion, or more than $52 billion in 2022 dollars.[47] Other estimates put the annual economic value of the Gulf of Mexico at $2 trillion, or $2.73 trillion adjusted for inflation.[48]

Some ecosystem services such as spiritual value can be impossible to quantify and are invaluable. Others such as the ocean's ability to attenuate pollution or absorb carbon dioxide can be difficult to quantify but the economic cost of reproducing them through mechanical means would be astronomical. Whenever we choose to sacrifice some part of the Gulf of Mexico for oil and gas production, we should account for the accompanying decrease in ecosystem services.

Moving Forward

We now have viable alternatives to oil and gas, such as justly sourced renewable wind and solar, that will reduce our energy system's impacts on the environment and make our region more resilient to climate disruption. However, oil and gas infrastructure directly competes with or blocks these solutions such as offshore wind. This does not have to be the case where the federal government can play a major role in leading the energy transition.

For the people of the Gulf South, degrees of warming are not an abstraction or a future problem. This year, we documented a full 12 months of global temperatures that were 1.5 degrees celsius above historical measures, the warming threshold scientists had said we should not exceed in 2030 to avoid the worst impacts of the climate crisis. We need to act now.

Recommendations

- **Invest in Justly Sourced Renewable Energy.** We now have viable alternatives to fossil fuels that can meet our national energy needs and do not accelerate the climate crisis. Peer-reviewed studies have demonstrated viable pathways to transition our energy system to 100 percent renewable energy.[49] This transition to renewable energy would pay for itself in about 6 years.[50] Renewable energy is now less expensive than fossil fuels. Almost two-thirds of newly installed renewable power in 2021 had lower costs than the cheapest coal-fired option in the world's top 20 economies. Renewable energy is safer, cleaner, and cheaper than offshore oil and gas drilling. Simply put, we can best meet our national energy needs by transitioning away from fossil fuels and transitioning as rapidly as possible to renewable energy made from materials that are sustainably sourced and respect Indigenous sovereignty. From "Principles of a Just Transition in Offshore Wind Energy":[51]
    - Supply Chains and Life Cycles compatible with Zero Waste, Circular Economy Principles, and Ecological Mindfulness: While offshore wind energy does not create greenhouse gasses emissions, its production, transportation, and maintenance can produce emissions and waste. We must advocate for local manufacturing in existing industrial areas to support, protect, and revitalize local production capacity where applicable and in accordance with local frontline community priorities to avoid transportation emissions.

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[47] Colgan, Charles. 2008. "The Ocean Economy of the Gulf of Mexico in National Perspective" in The Changing Coastal and Ocean Economics of the Gulf of Mexico. Edited by Judith Kildow, Charles Colgan, and Linwood Pendleton, University of Texas Press. (pp. 2, 3).

[48] Shepherd, Andrew N., "Economic Impact of Gulf of Mexico Ecosystem Goods and Services and Integration Into Restoration Decision-Making," Gulf of Mexico Science, 2013(1-2), pp. 10-27, https://www.disl.org/assets/uploads/publications/goms-31-01-10-27.pdf

[49] Khalili, Siavash et al. "On the History and Future of 100% Renewable Energy Systems Research," IEEE Access. 10, 2022, 1-1. 10.1109/ACCESS.2022.3193402.

[50] Jacobson, Mark Z. et al., "Low-cost solutions to global warming, air pollution, and energy insecurity for 145 countries," Energy Environ. Sci., 2022, 15, 3343

[51] UPROSE, Rogue Climate, Taproot Earth, and Climate Justice Alliance, "Principles for a Just Transition in Offshore Wind Energy," March 2023, https://taproot.earth/wp-content/uploads/2023/03/JustTransition-OffshoreWindEnergy_v2.pdf.

- Clean Up the Ocean:
  - Terminate the Rigs-to-Reef Program: The Rigs-to-Reef program encourages platforms to be left in place (or toppled or removed and moved to a predetermined reefing location) and placed in a state-driven and funded rigs-to-reefs program, as an alternative option to the requirement of removal. Naturally this option has become attractive to oil and gas operators because it is less expensive to "reef" a structure instead of removing it. Today, there are more than 515 "reefed" rigs on the seafloor in federal waters, not counting "reefed structures" in state waters. Because reefed structures require a mandatory buffer of 500 feet per rig, we strongly recommend the termination of this program so as to not impede the build-out of domestic renewable energy.
  - Disclose Progress of Idle Iron: Idle Iron is a policy established in Notice to Lessees (NTL) No. 2010-G05[52] and updated with NTL No. 2018-G03[53] to address timelines associated with the completion of platform removal requirements and well plug and abandonment. BSEE introduced Idle Iron to prevent "inactive facilities and structures from littering the Gulf of Mexico by requiring companies to dismantle and responsibly dispose of infrastructure after they plug non-producing wells." The last known structural Idle Iron list contained over 600 platforms as of 2010.[54] It's critical that there is a public disclosure of the progress of this program. Idled platforms not only pose both a real time threat with hazards, but with a mandatory buffer of 500 feet per rig, substantially constrain the future scale of offshore wind.
  - Jobs: Legacy oil and gas infrastructure litters the ocean floor, especially in the Gulf of Mexico. We should increase federal funding to put people to work cleaning up the ocean floor to make communities whole again and aid transmission. For all future leases, when an oil and gas operator signs a lease with BOEM, they should agree to remove all equipment and clear the seafloor when the infrastructure is no longer useful for operation.[55]

Mr. ROSENDALE. Thank you very much, Mr. Dix, I appreciate your testimony. The Chair will now recognize Members for 5 minutes of questioning, and I now recognize myself for 5 minutes.

Our country's energy producers continue to face attacks from every Federal regulatory angle. However, despite President Biden and the radical left's continued desire to move away from traditional fuel sources, our nation's power grid still relies heavily upon these baseload energy sources. For example, the model leftist state of California meets nearly 60 percent of its electrical demand through natural gas due to the inconsistency of their favored alternative sources like solar and wind. More than 80 percent of today's energy use in the United States comes from oil and gas, even as the climate zealots do everything in their power to move our country to 100 percent renewables.

Offshore production is critical to the necessary all-of-the-above approach to energy and a strong American future. Offshore production helps ensure that our country does not eventually become

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[52] US BOEMRE (2010). Notice to lessees and operators of federal oil and gas leases and pipeline right-of-way holders in the Outer Continental Shelf, Gulf of Mexico OCS region. NTL No. 2010-G05. https://www.bsee.gov/sites/bsee.gov/files/notices-to-lessees-ntl/notices-to-lessees/10-g05.pdf

[53] US BOEM (2018). Idle Iron Decommissioning Guidance for Wells and Platforms. NTL No. 2018-G03 https://www.bsee.gov/sites/bsee.gov/files/notices-to-lessees-ntl//ntl-2018-g03.pdf

[54] Keen, Elena. The Billion Dollar Brewing in the Gulf. https://www.ecomagazine.com/in-depth/featured-stories/the-billion-dollar-problem-brewing-in-the-gulf

[55] BOEM, "OIL AND GAS LEASE OF SUBMERGED LANDS UNDER THE OUTER CONTINENTAL SHELF LANDS ACT," Sec. 22(a), https://www.boem.gov/sites/default/files/about-boem/Procurement-Business-Opportunities/BOEM-OCS-Operation-Forms/BOEM-2005.pdf.

utterly reliant on foreign and adversarial sources of energy to help meet our rising electrical grid demands.

Under President Trump, this country achieved energy independence and dominance. To see this Administration not walk back, but run back the great work that President Trump and his Administration had done on the energy front over these past 3 years is painful to watch, not only for the effects it has had on our nation, but the effects it has had right in my backyard with the cancellation of the Keystone pipeline and the continued war on coal production.

We need to open back up these offshore leases and start producing all we can right here in America. We must not rely on foreign adversaries for energy, and we can no longer hamper our important LNG exports, allowing these adversaries to increase their global influence.

This Administration needs to start getting serious about producing here, producing for the American people, and producing for our economic and national security.

Furthermore, refusing to take advantage of this country's vast offshore reserves puts increased pressure on the Interior to produce.

Yet, Montana is also struggling to get the necessary leases, and not for lack of trying.

This all-out assault on oil and gas and other traditional baseload energy sources must stop. We, as a government, need to focus on putting our citizens' energy needs first, rather than placating the radical climate activists.

I thank you so much for your testimony, Mr. Cruickshank. As an avid supporter of wind energy, are you not concerned about the potential unreliability that comes with that energy?

I posted a video online about a month-and-a-half ago as I was driving through north central Montana in a location called Judith Gap, in the middle of a wind farm. The temperature was about 30 degrees below 0, and it is on film that not a single one of those turbines was turning. Does that not give you any pause for concern?

Because I can tell you, the people that lived in that area that were dependent on that energy, they needed it when it was 30 below.

Dr. CRUICKSHANK. Mr. Chairman, I am not concerned. Offshore wind has a long track record globally. I have been producing energy for over 30 years, and have been doing so successfully. One of the——

Mr. ROSENDALE. So, at what rate are they producing that energy? Is it 100 percent reliable, as a coal facility would be, or as a liquid natural gas facility would be, or are they operating more at that 38 to 40 percent production level that I see the wind farms across Montana?

Dr. CRUICKSHANK. Something between 40 and 50 percent, I think, right now, but the efficiencies are improving. And I would note that offshore wind tends to blow at times——

Mr. ROSENDALE. OK, so if we have 40 to 50 percent of the time that we can rely upon that energy, some quick math tells us that that means 50 percent of the time we cannot rely on that energy. So, what I have seen is the footprint that is necessary in order to

produce the energy that would be supplanted, replaced by this wind energy covers, literally, thousands and thousands of acres.

How about the environmental impacts? What is that doing to the ocean beds?

And what is that also doing to all the seashore birds, seabirds that are traveling around those areas, have you done any research on the impacts?

Dr. CRUICKSHANK. We have put tens of millions of dollars into research on those impacts, Mr. Chairman, and the offshore leases are sited in areas that avoid or minimize impacts, staying out of migratory bird flyways, away from the——

Mr. ROSENDALE. "Minimize" is a very subjective word.

Does your agency hold any concerns relating to Russia's increased Arctic Circle oil production and its increasingly close drilling towards U.S. maritime borders?

Dr. CRUICKSHANK. That question is better directed at the State Department, sir.

Mr. ROSENDALE. OK, I have used my 5 minutes of time, so I am going to yield back and recognize Mr. Mullin for 5 minutes of questioning.

Mr. MULLIN. Thank you very much, Mr. Chair.

Thank you all for being here. I believe that before we discuss yet more offshore oil and gas development, we need to talk about existing oil and gas infrastructure that is no longer being used, and the danger it poses to coastal communities, including my district in the San Francisco Bay area.

Last year, a GAO report noted that there are over 2,700 wells and 500 platforms which are overdue for decommissioning. And as I am sure you well know, the marine environment can corrode this equipment over time, threatening oil spills and gas leaks that would devastate our coastlines. I am concerned that, although decommissioning has been estimated to cost between $40 to $70 billion, your agency has only $3.5 billion in supplemental bonding to cover this liability.

My question is for Dr. Cruickshank. What is your agency doing to ensure that oil and gas companies fulfill their responsibilities to close this aging infrastructure and protect our coastal communities?

Dr. CRUICKSHANK. Representative Mullin, our Bureau is in the process of preparing a final rule to upgrade the supplemental financial assurance that is required of companies. That rule is currently undergoing interagency review through OMB, and we expect to publish later this year. It will strengthen and modernize the requirements we have in place for supplemental financial assurance to ensure the American taxpayer is not left having to pay the cost of decommissioning oil and gas infrastructure.

Mr. MULLIN. OK, thank you for that. A question about offshore wind.

California in particular has very ambitious clean energy goals, and offshore wind has enormous potential to help meet these goals. When I was speaker pro tem of the California State Assembly, we passed a bill requiring state agencies to develop a plan for offshore wind while creating good jobs and protecting California's

unparalleled marine ecosystem. But actual development still appears to be a number of years away.

So, again, Dr. Cruickshank, and I welcome comments from others, what are the main hurdles slowing offshore wind development in the Pacific region, and what are some ways that Congress can help on that front?

Dr. CRUICKSHANK. We just recently issued our first leases offshore California in a sale at the end of 2022. And we are currently doing a programmatic environmental impact statement on development of those leases.

As far as some of the challenges on the West Coast, I think, as elsewhere, one of them is transmission, how you get the power to shore and move it from where it comes ashore to where the demand is.

There is also need for investment in domestic supply chain from ports and vessels all the way through to the components of the wind farms themselves.

And we are also dealing with floating offshore wind, which is a relatively new technology for the offshore wind industry.

The Biden administration has taken an all-of-government approach to these issues. All agencies are working together to try to support the development of this industry to provide benefits to communities, good-paying jobs, and energy security going forward.

Mr. MULLIN. Thank you. I yield back.

Mr. ROSENDALE. The gentleman yields.

Ms. Velázquez.

Ms. VELÁZQUEZ. Thank you, Mr. Chairman.

Thank you all for your testimony. And Mr. Dix, I would like to ask you. In your testimony, you highlighted how offshore oil and gas drilling and refining disproportionately burden poor, rural, Black, Indigenous, and communities of color in the Gulf. Could you please elaborate and give one example of this negative impact?

Mr. DIX. Yes. I think one of the best examples that we have is, again, the area along the industrial corridor. This is the area between Baton Rouge and Plaquemines Parish, which is really the mouth of the Mississippi River. Everything is really focused on the river because of the need for water resources.

So, if you can think about the whole supply chain, you have the fracking fields in northwest Louisiana, where there are significant water and air impacts from that activity, in some cases, earthquakes. Those pipelines are then transferred over private lands. Sometimes those lands are expropriated against people's will, there are disruptions to the land and water again.

Then they come to these large industrial facilities that are often located on what were former plantation lands. And with some of the people that I know there, their family has had that land since the end of the Civil War. So, really, these plants have come to them, and we really think that it is no accident that the industry has found its way to places where people who are too often seen as disposable, poor people, Black people, people of color, live and have less political power.

So, when these companies come, there is air pollution, there is water pollution, there is premature death. And I think what is even harder sometimes is that people are not believed.

And then, on top of that, once these fuels are burned we have climate change that creates the climate disasters, which many times can cause these plants to explode during disasters. So, people are waiting to be evacuated on their rooftops breathing in toxic chemicals.

Ms. VELÁZQUEZ. Thank you, and we are all very familiar with the climate benefits of prioritizing offshore wind development. But the local benefits to coastal communities are not often part of the conversation.

Mr. Dix, how would transitioning from offshore fossil fuel drilling to offshore wind benefit Gulf communities?

Mr. DIX. Yes, I think that that is exactly the type of question that we are grappling with and working on, because I think a lot of communities have questions. I think, on the one hand, they understand the imperative to transition away from dirty energy as quickly as possible, but they don't want to be further dominated by a new industry that is coming in.

And I think the way that we can work through that and create something better is through better processes, with consultation with Indigenous communities, with frontline communities. We think that there can be much better revenue-sharing that is directed directly at frontline communities.

Right now, the offshore wind program, I believe, is not included under Justice40. So, changing that would be at least one step in the right direction.

Ms. VELÁZQUEZ. And do you think it is important to fully transition, and not simply develop both?

Mr. DIX. Yes, it is incredibly important to transition because, as we were saying, climate change is one problem, but the problems of the refinement from oil and gas byproducts like fertilizers and plastics also have an incredible toll on our environment, both from the people who live near the refining, to the plastics, to the nitrogen pollution that creates the dead zone off the Gulf of Mexico.

There are so many problems that we have to address at the same time, and I would say nothing less than a full phase-out is going to help get us there.

Ms. VELÁZQUEZ. Thank you. And while we transition to renewable energies like offshore wind, what are some considerations policymakers should bear in mind so that we do not accidentally replicate the injustices in our current energy system?

Mr. DIX. Well, I have worked with environmental justice groups in New York, Oregon, and a broad coalition called the Climate Justice Alliance to create a document called Principles of a Just Transition in Offshore Wind Energy. And as I see that our time is running down, I would love to submit that for the record or follow up via e-mail.

Ms. VELÁZQUEZ. OK, thank you.

I yield back, Mr. Chairman.

Mr. TIFFANY [presiding]. The gentleman from Rhode Island is recognized for 5 minutes,

Mr. MAGAZINER. Thank you, Chairman, and thank you all for being here today.

Coming from Rhode Island, offshore wind is not a hypothetical for us; it is a reality. My district is the home of the first operational

offshore wind farm in the country, the Block Island Wind Farm that has been spinning for about 5 years now. We are currently underway on building out the Revolution One wind farm. When that is done, about a third of Rhode Island's electricity will come from offshore wind, a third of our entire state's electricity.

And then there is a second procurement, along with Connecticut and Massachusetts, our neighboring states, that we are working on. That has the potential to get us to close to 100 percent of our electricity needs just from offshore wind. This is domestic energy, American-made, American jobs. And the procurements we have had so far from Revolution One are attractive to ratepayers, as well, and are roughly in line with the market rate for electricity. So, good for ratepayers, good for American jobs, good for American energy independence. And we can speak from experience on this because it is actually happening.

I will also note that the other wind farms that are currently under construction in the area, in Massachusetts and New York, a lot of that work is actually being done in Rhode Island, so we are very familiar with that, as well.

We can say for sure in Rhode Island, offshore wind is a big part of our energy future, a big part of how we maintain our energy independence. And frankly, a lot of the myths and fearmongering around offshore wind, we can tell you from experience in Rhode Island, just is not true. And if you place the wind farms in a thoughtful way, with stakeholder feedback and stakeholder engagement, you can find a way to build out offshore wind in an affordable way, in a fair way, and a just way, and do it while meeting the concerns of other local stakeholders, as we have done in Rhode Island.

So, let's dig into this a little more. Mr. Cruickshank, you are with BOEM. NOAA also is a partner agency with you all in figuring out where offshore wind is most appropriate to develop.

One of the myths that I think we want to push back on is this sense that it is the Wild West out there, and we are going to be building wind farms in places where we shouldn't, it is going to have an impact on wildlife and on local industries. Can you just demystify this a little bit?

The regulatory process to get approval to build an offshore wind farm is extensive. It takes years. And I know you are trying to streamline that at BOEM, but can you just educate everyone here a little bit?

What are the controls that are in place to make sure that offshore wind is not being developed in places that will have an excessive impact on marine life, on local industry, et cetera?

Dr. CRUICKSHANK. Yes, I would be happy to. We actually start the process long before any lease sale is proposed, creating an intergovernmental task force with state governments, local governments, tribes, and other Federal agencies to walk through a region of the ocean and understand what is out there, how it is being used, what the environmental resources are, and try to identify what areas might be most suitable in terms of being able to provide wind while avoiding most conflict.

We actually partner with NOAA's National Centers for Coastal Ocean Science. They have a planning model that allows us to look

at all of that data for marine uses and environmental resources and determine the least conflicted areas where wind farms might fit.

Once we have this sort of information, we then go public and have a multi-year process in which we are asking for public input on the areas we are looking at. We have plenty of public meetings, meet with individual stakeholder groups, ocean users to get their input, refine the models, refine the data, and eventually propose an area that, again, we continue to get input on throughout until we get to a lease sale.

Mr. MAGAZINER. I thank you.

I have noticed that some of my colleagues don't seem to care very much about impacts on marine life when we are talking about offshore oil and gas, only when we are talking about offshore wind. But the larger point is that we should always care about marine life, but that there are significant processes in place at BOEM and at NOAA to ensure that offshore wind is only being developed in appropriate areas where that impact can be mitigated.

And then just real quick, Mr. Milito, from the industry perspective, can you talk a little bit about what you see as the economic and job-creating potential from offshore wind nationally?

Mr. MILITO. Yes, it could be huge. We represent the entire supply chain. We have vessel companies, marine construction companies. We have cable-laying companies. Those companies in our membership were active in Block Island and are going to be active in a future upcoming project, so we view it as an opportunity. They view it as a business investment opportunity. And we are hopeful that, moving forward, they are going to be able to continue to do the core oil and gas work they have been doing, and add to it the offshore wind work that is on the horizon.

Mr. MAGAZINER. I thank you all. I will yield back.

Mr. TIFFANY. The gentleman yields. I now recognize the gentleman from Louisiana, Mr. Graves.

Mr. GRAVES. Thank you all for being here, and I appreciate your testimony.

I just continue to be a little bit baffled by what we are seeing with energy policy right now. I am looking at the 2023 EIA, the Energy Information Agency projections that show that, for example, global oil demand is going to increase 57 percent, that global gas demand is going to increase 58 percent, and that right now coal accounts for about 63 percent of China's energy portfolio.

All right. So, look, I am from south Louisiana, I am just looking at numbers. There is going to be a global increase in oil and natural gas demand. All right? You look at the carbon intensity of oil and gas. We have some of the most efficient sources in the world in the Gulf of Mexico.

Mr. Milito, what am I missing? What am I missing? Why would you not have lease sales, ban additional lease sales whenever there is going to be increased demand globally, and we have some of the least carbon-intensive sources in the world?

Mr. MILITO. Yes, sir. You are not missing anything. It is very straightforward. We have the resource base, we have the demand surging, moving forward, and we need to provide reliable, affordable supplies of energy to the American consumer so we can

maintain our high quality of life while we are going to be competing globally with countries like China. And we are going to see regions like the global south, India, Africa, Southeast Asia continue to grow their economies, and it is going to be a global competition. And we need to make sure we are positioning ourselves for future energy security.

Mr. GRAVES. I know that we have had Department of the Interior officials that have transcended or been through various administrations that have sat right here in this Committee and have told us that decreasing supply of oil and gas production in the United States doesn't do a damn thing for demand, doesn't do anything. It doesn't change demand. So, the demand is just filled, voids are filled by other countries. In this case, Iran, Russia, and then, of course, China, as well.

Now, China's economy is much less efficient than ours is. While the United States has led the world in reducing emissions, for every 1 ton of emissions we have reduced, China has gone up by 5. Gone up by 5. Today, China emits more than all of the industrialized countries combined. So, you have a country that has less efficient economy in terms of economic activity per emissions unit. Why does it make sense to continue to cede ground to China?

I mean, again, I am just trying to understand this Administration's energy policies.

Mr. MILITO. It doesn't. And it is interesting, because this week at the big energy conference, CERAWeek, we heard the Secretary of the Department of Energy, Jennifer Granholm, make the point that I found very interesting. She said our passivity is their opportunity. She was talking about clean tech in China, but that applies just as much to oil and gas, CCS, even offshore wind.

Mr. GRAVES. It applies to everything.

Mr. MILITO. When we have passive or intentionally failing policies on the energy side here in the United States, that creates the opportunity for other countries around the world like Russia, China, Venezuela to seize that opportunity and get that economic benefit and that energy security and take it away from us.

Mr. GRAVES. I just can't understand this Administration's energy policy, as hard as I have tried to rationalize. Higher prices, more dependence upon unfriendly countries, higher emissions. All day long, it makes no sense at all. It makes no sense. And watching this Administration, higher royalties, pipeline fees, all of these different regulatory burdens, and stopping or preventing any new production, all it does is further curtail supply. It drives up prices and makes us dependent upon foreign countries. It is just a baffling thing to me.

Mr. Cruickshank, I appreciate you being here. I wanted to change gears a little bit. I know that you and I have had the chance to talk about financial assurance a good bit. Could you quickly just give the Committee an update on where that stands?

Dr. CRUICKSHANK. Yes, that draft final rule is with OMB's Office of Information and Regulatory Affairs, undergoing interagency review. And we expect to be able to publish it later this year.

Mr. GRAVES. Can you talk at all about how BOEM is going to try to strike the right balance in the regulation in sort of fulfilling

their decommission liability and ensuring the Gulf of Mexico remains competitive for new investment?

Dr. CRUICKSHANK. Yes. I can't actually speak to what is in the final rule, but based on the proposed rule, we took an approach of trying to really focus, asking for supplemental financial assurance of those companies that pose the greatest risk of defaulting on their lease obligations.

The majority of the liability that is out there, we believe, are covered by companies that have strong financial credit ratings and will not be asked to provide supplemental financial assurance.

Mr. GRAVES. Thank you.

I yield back, Mr. Chairman.

Mr. TIFFANY. The gentleman yields.

I ask unanimous consent to enter into the record a statement from Majority Leader Scalise. His district is home to Port Fourchon, which services 90 percent of our country's offshore energy development.

Without objection, so ordered.

[The information follows:]

Statement for the Record

Congressman Steve Scalise

Thank you to Chairman Stauber for hosting this important hearing and to our witnesses for taking the time to share their testimony.

America's offshore resources—including the nearly 15% of America's domestically-produced oil and natural gas that comes from the Gulf of Mexico—are critical to our nation's energy, economic and national security. My district is home to Port Fourchon, which services over 90% of the energy exploration and development activity in the deepwater of the Gulf, and the valuable energy and maritime industries that call Southeast Louisiana home.

The Biden Administration has waged a war on American energy, and my constituents are situated at Ground Zero in this battle. And families and small businesses across the country are feeling the pain from the failure of this Administration to understand that their radical "Green New Deal" agenda has real-world, devastating impacts on hard-working taxpayers. This Administration's failed energy policies are not only killing American jobs and shipping them overseas, but are also jeopardizing the energy and national security of our country and leading to higher costs on everything from gasoline to groceries.

Whether it's delaying the 5-year offshore lease plan, attempting to illegally cancel lease sales or issuing radical regulations from myriad agencies that make developing American energy costlier, this Administration seems intent on shutting down American energy exploration and development at every turn. Look no further than President Biden's own comments in the past—he said during his campaign in 2020: "*No more drilling on federal lands. No more drilling, including offshore. No ability for the oil and gas industry to continue to drill. Period. It ends*."

That's all we need to know about what this Administration is trying to accomplish. And to be clear: Joe Biden's radical policies are killing American jobs, increasing costs on families and small businesses, and emboldening our enemies abroad.

I applaud the Committee for holding this hearing to examine the vast potential of our nation's offshore resources—and what that means America's economic, energy and national security—and for the important work that the Committee continues to do to hold this Administration accountable for their devastating policies.

Mr. TIFFANY. Dr. Cruickshank, we heard about the offshore, what was it, the Block Island project off in Rhode Island? Do those projects receive any Federal subsidies?

Dr. CRUICKSHANK. There are tax credits that are available to offshore wind developers, much like they are to many other industries.

Mr. TIFFANY. Are those tax credits significant?

Dr. CRUICKSHANK. I believe they are significant in putting the financial package together to build the wind farms.

Mr. TIFFANY. Without the tax incentives, would those projects be able to be built in a competitive marketplace?

Dr. CRUICKSHANK. I believe some would, some others might not. It really depends on which region of the country you would be operating in.

Mr. TIFFANY. The three gentleman in the middle, do you care to comment on that at all? Would they be built without tax credits?

Mr. MILITO. It is going to be project-specific, depending on the financing, and the company, and the location. There are going to be a lot of variables that go into that. But it would depend on the project.

Mr. TIFFANY. Because I know, where I sit in Wisconsin, those projects would not get built for wind and solar, the intermittent sources of power, without the rich subsidies that are given to developers in order to be able to build those projects.

Mr. Dix, does your organization have a plan to have China and India cut down on their emissions?

Mr. DIX. Well, as you probably know, the United Nations process is quite complicated because it is entirely voluntary, and the United States plays a large role in how those negotiations play out.

But I have heard various testimonies today about that we are competing with China. And one way that I think that would be better for the world and for the environment would be if we were competing to help other countries transition to renewable energy. I think that would increase the energy security that people are here today saying that they want, and I think that it would address our climate crisis at the same time.

So, there are a number of things, I think, that we could do to help speed the transition in other countries so that everyone can enjoy energy security and energy independence.

Mr. TIFFANY. So, we should be trying to convince India and China to use windmills and solar panels?

Mr. DIX. Well, I think that international diplomacy when it comes to climate change means that we do have to do a lot of convincing for other countries in the world for a great number of things.

Mr. TIFFANY. But China keeps fending us off. They say, yes, we will sign on to those accords, but it doesn't apply to them until some date in the future, whereas we accept those burdens now, and we have actually been the best country in terms of reducing our carbon footprint, if you believe that is actually a problem. That is actually quite a success story, yet they keep telling us that, no, give us until 2030, and then we will comply.

Mr. DIX. Yes, and we have also heard a lot today about the amount of oil and gas that the United States is producing, and we are a net exporter. We are also continuing to approve large projects like the Mountain Valley Pipeline. So, as a net exporter of oil and

gas, I think there is a lot that we could do. And I think one of the best things that we can do is lead by example.

Mr. TIFFANY. So, lead by example by shutting down using carbon sources of energy?

Mr. DIX. I think developing clean energy is going to be good for people and the planet, and I think it is going to be good for creating jobs, because in the Gulf of Mexico we have certainly seen automation and other market forces actually decrease the number of jobs in the offshore oil and gas sector for quite a long time now, even as production of barrels has gone up.

Mr. TIFFANY. Does Taproot Earth have subsidiaries in China, India, anywhere around the world, other than the United States?

Mr. DIX. We don't have subsidiary offices, but we work globally. So, a lot of what we do is work with people across what we call the African diaspora, which are countries in Africa and places where African-descended peoples live, to talk about climate justice. We really are thinking about this from a global perspective, not really in terms of having one country participating in energy dominance, but more like energy cooperation.

Mr. TIFFANY. But, you are not in China or India.

Mr. DIX. Currently, no.

Mr. TIFFANY. The number of climate-related deaths in the last 100 years, what direction has that gone?

Mr. DIX. I think climate-related deaths, I would have to know more about how that is categorized.

Mr. TIFFANY. It is a really interesting chart that highlights, and I can show it to you afterwards. They actually went down 98 percent as a result of the advancements in technology. It is no different than life expectancy. What was it, like 52 years old in the year 1900? One in ten babies died here in America in infancy, and life expectancy is so much higher now. Infant mortality is so much better. Climate-related deaths are significantly less, 98 percent less, over the last 100 years. Wouldn't you call that a success story?

Mr. DIX. Well, I was just in Louisiana 2 weeks ago for some other meetings, and I participated in a coastal tour and a tour of Cancer Alley, areas that I have seen many times, and I find it very difficult to talk to people who are losing their land and being forced to evacuate, and watching their friends and neighbors die of cancer, and telling them that they should be grateful for how good it is.

I think we can do a lot better. I think we have solutions. I think we have a lot of expertise in this country, and I think we could do a lot more to make sure that the poor people in this country have a much better life.

Mr. TIFFANY. Wouldn't you say poor people are far better off than they were 100 years ago?

Mr. DIX. I think that there are a lot of different ways that you can measure better off or worse off. I just really think that we could do a lot better than we are. And it really pains me to see people suffer.

Mr. TIFFANY. You talked about renewables earlier. Does your organization support any new mining projects in America?

Mr. DIX. What we support, and I would love to share with you a platform produced by the America the Beautiful for All Coalition.

I am actually here to participate in meetings with them. This is a group of people that are focused on public lands and Justice40, and we call for mining——

Mr. TIFFANY. Does Taproot Earth support any new mining projects in the United States of America?

Mr. DIX. Well, I would say that we are an organization that is focused on looking at the costs and benefits of energy sources, providing that information to frontline communities, and making sure that frontline communities are at the decision-making table so that we can plan our energy system and our environmental impacts together, and share the benefits much more easily——

Mr. TIFFANY. What would you say to a frontline community like the Iron Range of Minnesota, which is a neighboring district to mine, what would you say to those folks that would like to expand mines and build new mines up on the Iron Range, and yet you see these out-of-staters, oftentimes, or interlopers from hundreds of miles away who would not be impacted, and they fight tooth and nail to stop those projects and oftentimes are successful in stopping them, when local people, by and large, would like to have them built? Do you call that local control?

Mr. DIX. I would never advocate for an energy project in a place that I don't live, and that I am not from, and that I haven't talked to the community that is in there. And our organization is dedicated to redistributing the power to make those decisions.

So, I would welcome a dialogue with this Committee, with the communities up in Minnesota, and the communities all across the country about how we can reform our mining laws and how we can reform governance of our energy system to make it much more inclusive.

Mr. TIFFANY. You should take a look at the mining laws. When I was in the State Legislature, I rewrote our mining laws and modernized them, made them the toughest mining laws in the United States of America, but also allowed it to happen, whereas previously we simply had a moratorium, which I think is ridiculous. When you have something that is legal to be done, there shouldn't be a moratorium. There should at least be a regulatory process.

I see Taproot Earth, on their website, it talks about you practice anti-capitalism. What is anti-capitalism?

Mr. DIX. Well, I think that you can ask people about what the definition of capitalism is and get a million sort of different responses.

But I think what we are talking about is a shorthand for, again, sort of the system that I described in Louisiana, where a few large, private companies are allowed to extract resources that are natural, that weren't created by anyone, sell those for a profit, and then pass on the pollution, again, back to our public waters and public air, so that these externalities aren't factored into their prices. The money tends to flow——

Mr. TIFFANY. But haven't we reduced emissions significantly here in the United States of America?

I don't live on the Gulf Coast, but I just think about the electrical generation plants that we have in Wisconsin from the early 1990s. So, that would be 30 years later. We have reduced sulfur dioxide,

nitrous oxide, various emissions like that by as much as 90 percent. Isn't that a success story?

Mr. DIX. I think that you are right. I think what you are getting at is that we can, in fact, reduce pollution and not necessarily experience a decrease in quality of life. And I just think that we need to go further. I think that when we have cleaner energy, cleaner air, cleaner water, everyone can benefit, and it is just——

Mr. TIFFANY. Are you talking zero emissions when you say go further? Are you saying you expect zero emissions?

Mr. DIX. I definitely——

Mr. TIFFANY. Because there is no human being or human enterprise that has been created that is zero emissions.

Mr. DIX. Well, I think when we are talking about net zero, we are sort of talking about the net aggregate emissions for the entire globe. So, what we are trying to do is get our energy system in balance, where we are not emitting——

Mr. TIFFANY. Have you studied the entire life cycle chain for wind and solar? Because we are seeing wind turbines now being buried in coal mines out in Wyoming. Is that the best way for us?

I mean, are you doing the full measurement of the life cycle?

Mr. DIX. I think there are some really good life cycle assessments out there, and I do think that renewable energy compares quite favorably to fossil fuel energy, from what I have read.

But I think that we are in complete agreement that there are costs and benefits to every energy source. And what we are trying to do is evaluate those, and then make sure that the costs and benefits are being shared much more equally, so that frontline communities in places like the Gulf Coast aren't receiving most of the pollution and very few of the benefits.

I think you are absolutely right that we need to have a dialogue, and eventually a policy shift, to make sure that costs and benefits of the energy system are being shared much more equally. And I think that that absolutely includes renewable energy, as well as fossil fuels. I just think renewable energy compares favorably to fossil fuels when you look at the entire life cycle and all of the impacts.

Mr. TIFFANY. I went far over my time. And to the three gentleman in the middle, sorry that I was not able to address more questions to you. We appreciate the work that you do.

Production of energy is one of the most important things that we can do. I do have to say, though, I have a bill that would eliminate the subsidies for wind and solar, intermittent sources of power, if they are put on productive farmland. I do believe there is one thing more important than producing energy, and that is growing food. And I think taking our food-producing areas like in Wisconsin, where we are now sidelining thousands of acres, turning it into these wind and solar farms, by the way, industrial facilities, they are not farms, where we are eliminating farms at this point, I think, is very shortsighted in terms of the public policy front here in the United States of America.

I yield back and I turn to Mr. Duarte for his 5 minutes.

Mr. DUARTE. Thank you, Mr. Chairman.

Mr. Cruickshank, thank you for coming here today. In Santa Barbara, California there are about 10 oil platforms that are going

to be decommissioned over the next 10 years because the regulatory environment is just too severe for them to remain profitable. Is this part of the regulatory scheme that you oversee?

Dr. CRUICKSHANK. BOEM is responsible for determining where lease sales are held, looking at the resources that are available, and looking at the plans that companies submit. We don't oversee the actual operations.

Mr. DUARTE. Got you, thank you.

When you look at new oil leases, and there are a lot of opportunities for new offshore oil leases up and down the California coast, some of them that could be onshore access to offshore oil reserves through horizontal drilling. Is that within your jurisdiction?

Dr. CRUICKSHANK. We would have jurisdiction over leasing of the offshore resources. We would not have jurisdiction over any onshore activities that support.

Mr. DUARTE. Some of these oil reserves are so abundant. They are under such pressure that they are literally seeping oil into the ocean environment because they are not tapped. Does that fall into some of your assessments as to whether you issue leases on these types of reserves?

Dr. CRUICKSHANK. We provide the Secretary of the Interior information on the resources that are available in all OCS areas, and the Secretary looks at the various factors that the OCS Lands Act requires, and she looks at and makes a determination of what areas she believes would best meet the energy needs of the nation over a 5-year period.

Mr. DUARTE. Is relieving of pollution by natural seepage one of those parameters?

Dr. CRUICKSHANK. Well, I suppose we could have a conversation around whether a natural seep is pollution or not, but I think there have been some areas where they have shown where production does reduce the flow from natural seeps.

Mr. DUARTE. OK. But it may not be seepage. I mean, seepage may not be pollution because it is naturally occurring? Even if the volumes are far greater than any kind of contamination from actually offshore oil drilling itself?

Dr. CRUICKSHANK. I can't speak to the comparison of the volumes. I would just say things were occurring in nature before man was doing any activity there. I personally would have a hard time considering that to be pollution.

Mr. DUARTE. OK, so some oil on the beach is OK, as long as it is not anything to do with anthropogenic activity.

I will just throw it out to the other panelists. Do you have knowledge in this area? Would any of you like to chime in?

Mr. MILITO. I would just point out that there is an organization out of California called SOS, Stop Oil Seeps, and they were campaigning to have additional offshore drilling to ease the seeps and help prevent them in the future because of the pressure in the formation.

So, anecdotally, there was at least one organization out of Santa Barbara that was trying to get us to get out there and drill more wells to ease up on that pressure.

Mr. DUARTE. Is it true that a lot of this pressure can be relieved not from offshore drilling, but from onshore drilling with current technology?

Mr. MILITO. I don't know. We have a geologist maybe who could speak better to that than me.

[Laughter.]

Mr. DRYER. Yes, I think it would just be proximity to land as to how far out they could go. But certainly, the technology today can drill down to 40,000 feet in the Gulf of Mexico. So, it is very likely that could be the case. I am not that familiar with the geology in California, but——

Mr. DUARTE. Mr. Zaman, do you have comments on this?

Mr. ZAMAN. Yes. So, I think, generally, anything over 6 miles offshore would probably be problematic. It will be a determination as to where exactly the formations that are seeping are located.

Mr. DUARTE. Would you agree that oil seepage can be relieved by offshore drilling?

Mr. ZAMAN. It is not my technical expertise area, but anecdotally I have heard that, yes.

Mr. DUARTE. Thank you. Do any of you have opinions as to whether natural seepage has a different pollutant value than incidental leak from oil exploration rigs?

Do the fish care? Do the birds care? Do the turtles care?

Mr. MILITO. No oil is oil, and there is substantial oil in the water from natural seeps throughout the world.

Mr. DUARTE. I read one article that natural seeps in the Santa Barbara area are actually 50 to 100 times more than the entire history of oil platform leaks since they have been active down there. Do you have any perspective on that, Doctor?

Dr. CRUICKSHANK. I would have to look at the numbers. And certainly, over the time periods, there is a different impact from seepage that is coming out regularly at low amounts every day, every hour, versus a very large spill where everything sort of hits the water at once.

Mr. DUARTE. Last question. Have you recommended any new offshore oil leases to the Secretary during this Administration?

Dr. CRUICKSHANK. The Secretary just issued a National OCS Oil and Gas Leasing Program that does include three lease sales over the course of that 5-year period.

Mr. DUARTE. Over the next 5 years?

Dr. CRUICKSHANK. Yes.

Mr. DUARTE. There are three lease sales approved. And how does that compare to the previous 5 years?

Dr. CRUICKSHANK. There are a fewer number of lease sales than we have seen in earlier programs.

Mr. DUARTE. Is that because we have less oil, or we are just approving less oil lease sales?

Dr. CRUICKSHANK. It is the Secretary's determination that the number of lease sales she proposes in the program would best meet the nation's energy needs for the next 5 years.

Mr. DUARTE. We are depleting our petroleum reserve with no plan to refill it, and we are going to cut our leases, and you still believe that would meet the nation's petroleum needs in the next 5 years?

Dr. CRUICKSHANK. When we look at the OCS, almost 99 percent of the production is coming from the Gulf of Mexico. These lease sales would be in the Gulf of Mexico, and make all of the acreage that is legally available part of the lease sale process. So, I think that companies will have access to the acreage that they have been traditionally looking to have access to.

Mr. DUARTE. That is not a market assessment, it is just what lands are legally available by your assessment that you are basing this on. You are not saying that this is going to meet our energy needs; you are saying that is all the land that is available.

Dr. CRUICKSHANK. Well, no one has ever looked at the OCS to meet 100 percent of the nation's energy needs. So, it is a matter of what role the OCS plays in the nation's energy portfolio.

Mr. DUARTE. And does your group have anything to do with the pipeline permitting and pipeline processes around the country?

Dr. CRUICKSHANK. We do not.

Mr. DUARTE. Thank you, Chairman, I yield back.

Mr. TIFFANY. Mr. Duarte, if I may ask, did I hear that it is three lease sales over the next 5 years?

Mr. DUARTE. That is what I heard. Yes, sir. Yes, Mr. Chairman.

Mr. TIFFANY. Mr. Milito, do you know how many we had the previous 5 years?

Mr. MILITO. The last program, I believe, had 11, 1 in Cook Inlet and 10 in the Gulf of Mexico.

Mr. TIFFANY. There were 11. And do you know what the previous to that was?

Mr. MILITO. I think 15, and then 16, and then 20, and then 20, and it has been declining since the 1980s with each program.

Mr. TIFFANY. So, it is a steady decline.

Mr. MILITO. Correct.

Mr. DUARTE. If the Chairman will permit me, is it a steady decline in production volume or does the decline also——

Mr. MILITO. Production volume is at almost its highest levels in the history of the offshore leasing program, or nearly 1.9 million barrels per day now, which is a significant amount of production.

Mr. DUARTE. So, we are getting more per lease.

Mr. MILITO. We get much more production with far less acreage. We are much more efficient as an industry.

Mr. DUARTE. Will these three oil leases match the production of the previous 10, 12, 15, 16 oil lease awards?

Mr. MILITO. That is very hard to speculate, as to how it will play out. But fewer leases and only having three sales will likely lead to a shift in investment to other parts of the world, because the companies that are investing in these offshore projects have to decide where to send their capital, and this likely will lead to decisions where, because they don't have opportunities annually, they will have to shift that capital to other parts of the world.

In addition, under the Inflation Reduction Act, in order for there to be an offshore wind lease issued, there has to be an oil and gas lease sale the year before. So, they are creating gaps of 2 years between oil and gas, which means there is going to be at least 3 years where they cannot issue wind leases, which is also a big problem for our organization.

Mr. DUARTE. Thank you.

Mr. TIFFANY. The gentleman yields. I want to thank the witnesses for your testimony and Members for your questions.

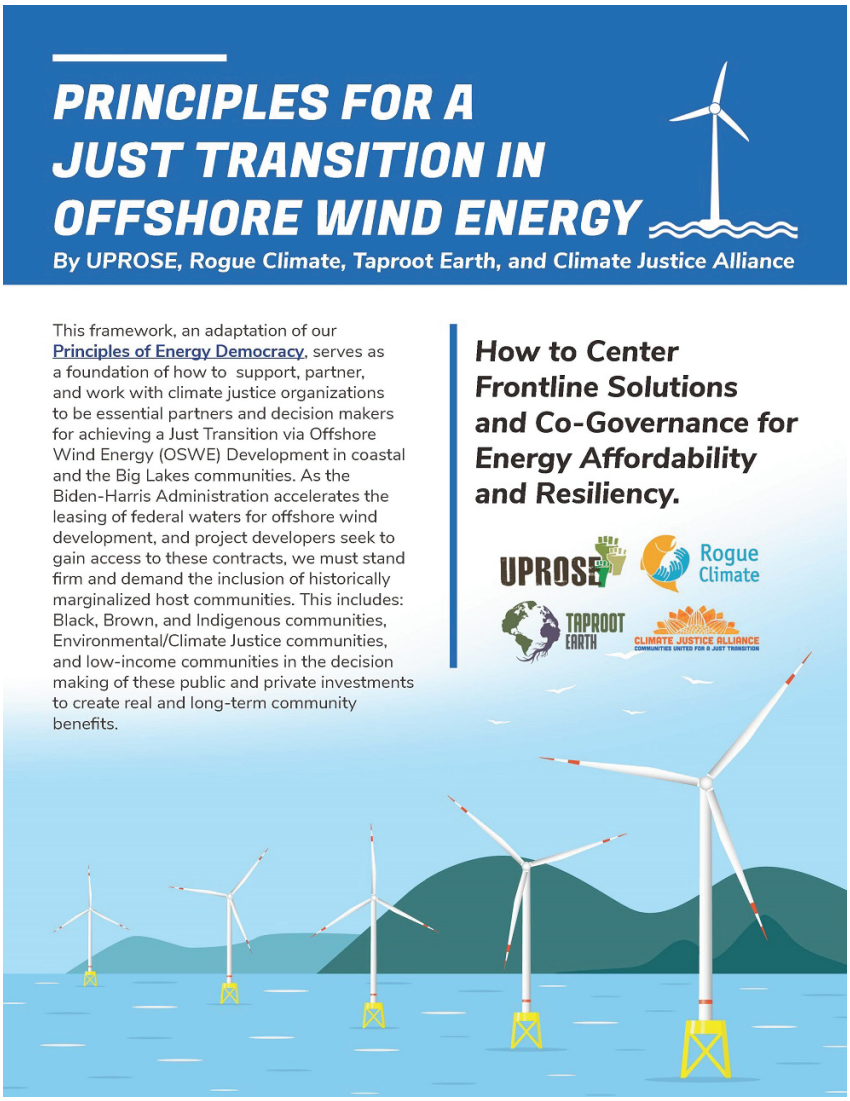
The members of the Subcommittee may have some additional questions for you, and we will ask you to respond to those in writing. Under Committee Rule 3, members of the Committee must submit questions to the Committee Clerk by 5 p.m. on Monday, March 25. The hearing record will be held open for 10 business days for these responses.

If there is no further business, without objection, the Committee stands adjourned.

[Whereupon, at 3:46 p.m., the Subcommittee was adjourned.]

[ADDITIONAL MATERIALS SUBMITTED FOR THE RECORD]

Submissions for the Record by Rep. Grijalva



PRINCIPLES FOR A JUST TRANSITION IN OFFSHORE WIND ENERGY

How to Center Frontline Solutions and Co-Governance for Energy Affordability and Resiliency.

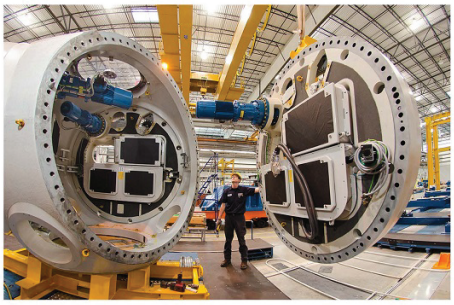
1. Energy Development as a Vehicle for Economic Justice and Human Rights: Environmental Justice (EJ) communities have experienced a legacy of health disparities for generations from shouldering the disproportionate burden of fossil fuel pollution and polluting infrastructure. Not only do fossil fuels cause a huge ecological damage to land, water, and air but they also create a health and safety hazard in Black, Brown, Indigenous, and low-income communities where they are overwhelmingly sited and the workers who maintain them. The development of renewable energies like offshore wind can create opportunities to:

- **a.** Transition existing fossil fuel infrastructure in EJ communities for renewable energy and energy storage alternatives
- **b.** Ensure local businesses are incentivized and supported to transition into the OSWE supply chain and provide information on timelines, challenges and opportunities
- **c.** Redress the ecological damage caused by the fossil fuel supply chain: mining, drilling, refining, transporting, spilling, and burning of fossil fuels.
- **d.** Reduce greenhouse gas emissions and harmful co-pollutants that pose a risk to the health of local communities.
- **e.** Invest in local training, workforce, and hiring opportunities to prioritize historically marginalized communities
- **f.** Provide community and shared ownership of local clean energy systems and promote climate adaptation, mitigation, and resilience to frontline communities
- **g.** Recognize and repair harm from the toxic legacy and relationship with dirty energy
- **h.** Advance community-led Just Transition goals
- **i.** Support State policy goals and mandates to reduce dependence on fossil fuels and meet clean energy and equity targets

2. Self-Determination in the Consultation Process: Free and Prior Informed Consent of Indigenous peoples and local historically marginalized communities is key to measure the impacts and benefits that a development of this magnitude would bring. This includes:

- **a.** Equitable and free access to information and access to justice in environmental matters is key for full participation in a consultation process.
- **b.** Listening sessions with the community members to determine maximum benefits before and as proposals are rolled out.
- **c.** Accountability measures, process, and timeline to incorporate and address impacted community concerns and priorities
- **d.** Inclusion of community voices and EJ communities in the different stages of permitting such as leasing, call areas, requests for proposal (RFPs) , and more submitted to the Bureau of Ocean Energy Management (BOEM) and to respective State agencies.
- **e.** Particular attention to the claims by Indigenous, Black, and immigrant communities and local fishing communities whose livelihoods depend on the viability of local marine ecosystems.
- **f.** Foster a culture of understanding that Indigenous sovereignty extends beyond territorial claims and includes access and management of the ocean. Also highlight that Black communities and many immigrant communities have a long history of

Water is Life - 2019 Climate Justice Youth Summit in Brooklyn. Photo by Rae Breaux



cultural connection with the waterfront

g. Seafood harvesting is an important industry and cultural institution in many coastal and Indigenous communities, and sustainable harvesting rights should be an important consideration when siting offshore wind.

3. Access To Renewable Energy Centered Around Communities: Offshore wind host communities (communities where wind projects are interconnecting, wind turbines are assembled, offshore wind supply chain activities, offshore wind ports, etc.) as well as the existing local businesses and local infrastructure, must be key beneficiaries of offshore wind investments and energy and an integral part of project decision-making. Not only could this provide more independence from the country's outdated national grid, but it could also strengthen energy resiliency and revamp local economies in coastal communities that have been underserved by energy developments at the federal level. Local communities' energy needs should be prioritized over industrial users.

4. Energy Affordability: Offshore wind lease sales have commanded even higher prices than oil and gas auctions. We must ensure that these costs aren't passed onto ratepayers to guarantee the profits of private utilities. Energy utilities should be publicly owned and funded through progressive taxation rather than regressive user fees. Where utilities remain privately owned, community benefit agreements should ensure that offshore wind lease revenues help offset local utility bills.

5. Job Access at Every Level: In order to achieve a just transition for workers, it is important to think about the workers throughout the various stages of OSWE development. Job development should also be grounded in racial and gender justice. Additionally, workforce development in coastal communities where these projects are proposed should be prioritized in order to ensure Offshore Wind jobs support sustainable local economies and careers. Training centers and resources must be economically and locationally accessible to historically marginalized host communities.

a. Create diverse and accessible career pathways for youth and young people, underpaid and underemployed workers, and existing local and small businesses

b. Job training and technical assistance for fossil fuel workers who wish to transition to OSWE, supported by local non-profits and academic institutions

- Transportation Jobs: Zero-emission electric vehicles for the transportation of raw materials and supply chains.
- Manufacturing Jobs: Production and assembly of the windmills, warehouse adaptations, and port adaptations.
- Installation: Technicians for the installation and port adaptations
- Maintenance: Wind Technicians for the turbines and offshore operations and the onshore port-related jobs

c. Offshore oil jobs are some of the most dangerous in the country, so we need the strongest possible protections of workers.

d. Project Labor Agreements can help make OSWE jobs safe and high-paying through collective bargaining.

6. Supply Chains and Life Cycles compatible with Zero Waste, Circular Economy Principles, and Ecological Mindfulness: While OSWE does not create greenhouse gasses emissions, its production, transportation, and maintenance can produce emissions and waste. We must advocate for local manufacturing in existing industrial areas to support, protect, and revitalize local production capacity where applicable and in accordance with local frontline community priorities to avoid transportation emissions. Regional manufacturing

can be an alternative when localized manufacturing may be detrimental to essential ecosystems and cultural resources of an area. We must seek ways to create windmill blades that are recyclable or can be repurposed at the end of their life cycles and are hurricane resilient.While we must support clean, local supply chains to the greatest extent possible, domestic manufacturing and hiring requirements should not be used in bad faith to delay OSWE development.

7. Acknowledgement of Wind Energy as part of the Commons: The waters and the air where offshore wind mills are sited must be recognized as public resources. That means the energy and profits generated by offshore wind should be publicly held as well. The United States should embrace models of community-owned development projects and state-owned development companies, which have already been implemented in other nations.

8. Rights of Nature and Ecological Mindfulness: The switch from fossil fuels to renewable energy will bring communities and society overall to a more balanced ecological relationship with Mother Earth. This transition should benefit not only communities, but also the natural environment when possible. Offshore turbines should be constructed to minimize impacts to wildlife and marine and estuarine ecosystems. (Landscape restoration)

9. Remediation: Legacy oil and gas infrastructure litters the ocean floor, especially in the Gulf of Mexico. This abandoned junk could interfere with offshore wind transmission lines and prevent offshore wind development in key regions. We should put people to work cleaning up the ocean floor to make communities whole again and aid transmission.

10. No False Solutions:

a. Carbon capture is expensive, energy-intensive, and has yet to work at scale in the United States. It's a technology that locks in reliance on fossil fuels and does nothing to reduce other harmful co-pollutants and carcinogens that come from fossil fuel combustion. Carbon capture pipelines can explode and kill people while also destroying coastal wetlands and/or competing with offshore wind transmission lines.

b. Hydrogen fuels are often produced with fracked gas, nuclear, or other fossil fuels and are reliant on carbon capture, which does not work. Blue and gray hydrogen may emit more greenhouse gas emissions than coal, while the nuclear energy needed for pink hydrogen has a long history of environmental injustice. Burning hydrogen produces NOx, a pollutant that causes respiratory health impacts especially in environmental justice communities. Additionally, Hydrogen, even when produced using renewable energy, is very inefficient, losing 70% of renewable energy and consuming 9-18 tons of water per ton of H2. The Climate Justice Alliance does not support any form of hydrogen combustion.

2024 Policy Agenda
America the Beautiful for All Coalition

Comprised of more than 250 nonprofits from across the nation and a variety of land, water, ocean, wildlife, sovereignty, and environmental justice missions, the America the Beautiful for All Coalition is the largest and most diverse coalition working to ensure that the national goal to conserve 30% of U.S. lands, water, and ocean by 2030 (30×30) centers communities on the frontlines of the climate and nature loss crisis. For too long, communities of color and low-income communities have borne the brunt of environmental injustices like pollution, nature destruction, and unsafe or unwelcoming outdoor spaces and been denied their rightful place at environmental decision-making tables. We believe the largest American conservation goal of the century should be led by a coalition that looks and sounds like communities across America.

Each year, the America the Beautiful for All Coalition partners join together across missions, identities, and cultures to identify opportunities to support communities facing nature deprivation, stem nature loss, and ensure that 30×30 is a tool for community justice. As water insecurity and extreme weather threaten vulnerable communities, species lose habitat and go extinct, and climate-related public health issues grow more severe, policy action remains urgent. We have no time to waste in stemming the nature loss crisis - for communities most vulnerable now and into the future. This coalition is daring enough to write a new narrative where the perspective and needs of those closest to environmental challenges must be the ones deciding what policy actions guide the largest conservation goal of the century.

Our 2030 Goals:

Conserve at least 30% of U.S. lands, waters, and oceans by 2030.

Protect 30×30 to avoid massive species loss, secure equitable access to nature's benefits, and prevent and repair the impacts of the climate crisis for all communities.

Apply a Justice40 metric to the America the Beautiful Initiative.

Implement a Justice40 metric for the America the Beautiful Initiative to ensure at least 40% of investments are made in communities of color and frontline communities that have historically seen little to no investment in conservation and equitable access to nature.

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The full document is available for viewing at:

https://docs.house.gov/meetings/II/II06/20240320/116958/HHRG-118-II06-20240320-SD009.pdf

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