

EXAMINING THE OIL INDUSTRY'S
EFFORTS TO SUPPRESS THE
TRUTH ABOUT CLIMATE CHANGE

HEARING

BEFORE THE
SUBCOMMITTEE ON CIVIL RIGHTS AND CIVIL
LIBERTIES

OF THE

COMMITTEE ON OVERSIGHT
AND REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

OCTOBER 23, 2019

Serial No. 116-67

Printed for the use of the Committee on Oversight and Reform



Available on: <http://www.govinfo.gov>
<http://www.oversight.house.gov> or
<http://www.docs.house.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

38-304 PDF

WASHINGTON : 2019

COMMITTEE ON OVERSIGHT AND REFORM

CAROLYN B. MALONEY, New York, *Acting Chairwoman*

ELEANOR HOLMES NORTON, District of Columbia	JIM JORDAN, Ohio, <i>Ranking Minority Member</i>
WM. LACY CLAY, Missouri	PAUL A. GOSAR, Arizona
STEPHEN F. LYNCH, Massachusetts	VIRGINIA FOXX, North Carolina
JIM COOPER, Tennessee	THOMAS MASSIE, Kentucky
GERALD E. CONNOLLY, Virginia	MARK MEADOWS, North Carolina
RAJA KRISHNAMOORTHY, Illinois	JODY B. HICE, Georgia
JAMIE RASKIN, Maryland	GLENN GROTHMAN, Wisconsin
HARLEY ROUDA, California	JAMES COMER, Kentucky
KATIE HILL, California	MICHAEL CLOUD, Texas
DEBBIE WASSERMAN SCHULTZ, Florida	BOB GIBBS, Ohio
JOHN P. SARBANES, Maryland	RALPH NORMAN, South Carolina
PETER WELCH, Vermont	CLAY HIGGINS, Louisiana
JACKIE SPEIER, California	CHIP ROY, Texas
ROBIN L. KELLY, Illinois	CAROL D. MILLER, West Virginia
MARK DESAULNIER, California	MARK E. GREEN, Tennessee
BRENDA L. LAWRENCE, Michigan	KELLY ARMSTRONG, North Dakota
STACEY E. PLASKETT, Virgin Islands	W. GREGORY STEUBE, Florida
RO KHANNA, California	FRANK KELLER, Pennsylvania
JIMMY GOMEZ, California	
ALEXANDRIA OCASIO-CORTEZ, New York	
AYANNA PRESSLEY, Massachusetts	
RASHIDA TLAIB, Michigan	

DAVID RAPALLO, *Staff Director*

CANDYCE PHOENIX, *Subcommittee Staff Director*

AMY STRATTON, *Clerk*

CHRISTOPHER HIXON, *Minority Staff Director*

CONTACT NUMBER: 202-225-5051

SUBCOMMITTEE ON CIVIL RIGHTS AND CIVIL LIBERTIES

JAMIE RASKIN, Maryland, *Chairman*

WM. LACY CLAY, Missouri	CHIP ROY, Texas, <i>Ranking Minority Member</i>
DEBBIE WASSERMAN SCHULTZ, Florida	THOMAS MASSIE, Kentucky
ROBIN L. KELLY, Illinois	MARK MEADOWS, North Carolina
JIMMY GOMEZ, California	JODY B. HICE, Georgia
ALEXANDRIA OCASIO-CORTEZ, New York	MICHAEL CLOUD, Texas
AYANNA PRESSLEY, Massachusetts	CAROL D. MILLER, West Virginia
ELEANOR HOLMES NORTON, District of Columbia	FRANK KELLER, Pennsylvania

C O N T E N T S

Hearing held on October 23, 2019	Page 1
WITNESSES	
Dr. Martin Hoffert, Former Exxon Consultant, Professor Emeritus, Physics, New York University	
Oral Statement	7
Dr. Ed Garvey, Former Exxon Scientist	
Oral Statement	8
Dr. Naomi Oreskes, Professor, History of Science, Affiliated Professor, Earth and Planetary Sciences, Harvard University	
Oral Statement	10
Ms. Sharon Eubanks, Of Counsel, Henderson Law Firm, PLLC	
Oral Statement	12
Dr. Mustafa Ali, Vice President, Environmental Justice, Climate and Commu- nity Revitalization, National Wildlife Federation	
Oral Statement	14
Ms. Mandy Gunasekara, Founder, Energy 45, Senior Fellow, Life: Powered Project	
Oral Statement	16
* <i>Written opening statements and statements of the witnesses are available on the U.S. House of Representatives Document Repository at: https:// docs.house.gov.</i>	

INDEX OF DOCUMENTS

- * *Documents entered into the record during this hearing and Questions
for the Record (QFR's) are listed below/available at: <https://docs.house.gov>.*
- * Unanimous Consent: Exxon internal memos dated June 6, 1978, October
16, 1979, August 3, 1998, October 13, 1997; submitted by Chairman Raskin.
- * American Petroleum Institute Action Plan dated April 3, 1998; submitted
by Chairman Raskin.

EXAMINING THE OIL INDUSTRY'S EFFORTS TO SUPPRESS THE TRUTH ABOUT CLIMATE CHANGE

Wednesday, October 23, 2019

HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON CIVIL RIGHTS AND CIVIL
LIBERTIES
COMMITTEE ON OVERSIGHT AND REFORM
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:07 a.m., in room 2154, Rayburn House Office Building, Hon. Jamie Raskin (chairman of the subcommittee) presiding.

Present: Representatives Raskin, Wasserman Schultz, Kelly, Gomez, Ocasio-Cortez, Pressley, Norton, Roy, Massie, Miller, Keller, and Comer.

Also present: Representative Comer.

Mr. RASKIN. Good morning, everyone. The subcommittee will now come to order. Without objection, the chair is authorized to declare a recess of this committee at any time.

Today's hearing examines the oil industry's knowledge and awareness of climate change and how its climate change denial campaign has affected people of color and vulnerable populations in our country and around the world.

I will now recognize myself for five minutes, but before we're going to show a quick video, if we could run that.

While we're cueing that up, I want to welcome all of our witnesses. Thank you for coming. And thanks to all of our participants. There are some other hearings going on. Mr. Zuckerberg is down the hall. And, of course, the impeachment investigation continues. So members will be coming in and out as their schedules permit.

Are we okay now? No.

All right. Well, let me go ahead and start with my statement, and we'll come back to the video.

But before I begin, I want to take a moment to recognize our beloved colleague and friend, Chairman Elijah Cummings, who chaired our committee.

He believed with all of his heart and all of his mind that government must be an instrument for the common good of all the people. His passion for freedom, for justice, for strong democracy will infuse the work of this subcommittee and the committee generally for generations to come.

As our Nation mourns him, many people have been sharing some of Elijah's most inspirational aphorisms, one of which is apt for our purposes today. In a 2016 hearing about the environmental and public health crisis unfolding in Flint, Michigan, Elijah called on his colleagues to recognize the moral gravity of the situation, and he said, quote, "Our children are the living messages that we send to a future that we'll never see. The question is, will we rob them of their destiny? Will we rob them of their dreams? No, we will not do that."

His words echo for us in the investigation of climate change, the civilizational emergency of our times, which threatens all of the rights and freedoms of the people, including the right to live.

Climate change is one of the preeminent emergencies facing our country. The evidence seems overwhelming that for decades the oil industry understood the lethal threat of climate change but misled the American people and buried the scientific truth of climate change. The industry has deprived the people of crucial information, with predictable and lopsided results. Working people, without the time or money to fight back against big oil, are paying the heaviest price now for climate change.

Oil companies like Exxon knew the scientific reality 40 years ago but waged a war of deception that cost us precious time in the fight to save our planet.

If we can put that slide up on the screen.

In 1977, Exxon scientist James Black told the company's top executives that fossil fuel usage was releasing enough carbon dioxide to change the planet's climate.

Two years later, in 1979, an internal Exxon memo noted that the buildup of CO₂ in the atmosphere would, quote, "bring about dramatic changes in the world's environment." That's in 1979 they had a memo pointing that out, that there would be dramatic changes in the environment.

In a 1981 memo, Exxon executive Roger Cohen cautioned against understating the threat to our planet, warning that the Earth's temperature could rise so high that it would, quote, "produce effects which will indeed be catastrophic, at least for a substantial fraction of the population." That's in 1981 that Exxon executive Roger Cohen was warning of this.

Exxon knew decades ago that climate change was real and would have devastating consequences if left uncorrected. In fact, according to Exxon scientist Ed Garvey, who is here today, Exxon was so certain of its science that it originally sought to be part of the solution and launched a sophisticated research program aimed at further understanding the full range of carbon dioxide's effects on our planet.

To Exxon's credit, its scientists were at the forefront of this research, and their dire predictions turned out to be frighteningly accurate.

When faced with the reality of the massive damage fossil fuels were likely to cause, Exxon could have chosen to present this truth to the American public, redirect its own research and development resources, and lead the way to a global shift toward alternative energy sources.

But this was not the path that Exxon chose. Instead, it sold off its renewable energy companies, it doubled down on fossil fuels, and along with other big oil companies like, Shell and Mobil, it launched an extensive and sinister campaign of climate denial, undermining the work and the warnings of its own scientists.

To make matters worse, big oil companies fortified their own infrastructure against climate change, factoring in the anticipated rise in temperatures and sea levels when deciding how and where to build their own infrastructure.

This revealing course of conduct simply gives the game away. They used their knowledge of climate change to protect their future profits, while preventing the American people from acting together to protect our collective future. They used their knowledge of climate change for purposes of corporate planning, but publicly denied the reality of climate change for purposes of national planning.

This contradiction is at the heart of our hearing today. The oil industry's denial campaign placed private corporate interests above the national public interest, and now poor and minority communities are bearing the brunt of the devastating effects of climate change.

Climate change has already had a disproportionate effect on low-income communities and communities of color, from New Orleans to Puerto Rico, the people who are often said to suffer first and worst.

Rising sea levels threaten to displace coastal and island communities. Government efforts are already underway to relocate Native American tribes in Louisiana and Alaska whose lands are vanishing into the ocean. Immigrants from Central America are migrating here to escape famine and drought caused by global warming.

Urban neighborhoods suffer disproportionately from rising temperatures. In Chairman Cummings' hometown of Baltimore, lower-income areas of the city were as much as six degrees hotter than the cooler, wealthier, tree-lined neighborhoods of the city. Hurricanes and wildfires are increasing in frequency and intensity, trapping poor people who cannot afford to evacuate or who struggled to rebuild their lives after losing everything to floods and flames.

In short, climate change produces the most devastating effects on those who can least afford to manage it.

The decades-long denial campaign has twisted and perverted our democracy. By funding climate denial and lobbying against governmental action, big oil has not only achieved a loud and distorting voice in the climate change debate, it has also deprived voters and policymakers of the materials and the ability necessary to make informed decisions about this fundamental challenge to the future of human existence.

James Madison said, quote, "A people who mean to be their own Governors must arm themselves with the power that knowledge gives." The people have been denied the power that knowledge gives, which means that we've effectively been governed by Big Oil with respect to climate change.

We are thankfully beginning to see momentum shifting toward action to prevent the further destruction of our climate system, but

we must remain wary of the feel good commercials and empty promises by companies that are still intent on deceiving the public. Exxon and their allies are continuing to fund climate denialism and explore new oil fields to exploit, even as the warnings from scientists grow increasingly dire about our situation.

In closing, I return to the words of Chairman Cummings. At a climate change hearing in Oversight in April, Elijah noted that, quote, “The true measure of leadership is whether we leave the world better for our children and our grandchildren and those yet unborn than we found it. Each day that we fail to act on climate change, we are risking the health and security of future generations.”

In order to understand and confront the crisis we’re facing, we must recognize the disastrous deception that brought us to the brink.

As we contemplate how to stop the destruction of our planet, the oil industry appears committed to perpetuating its deception. I challenge everyone here today to answer Congressman Cummings’ call. Will we allow climate denial to continue robbing our children of their destiny and their dreams?

No, as Elijah said, we will not do that. We will find the truth, and the truth will start the process of setting us free. If we act with courage and resolve, the kind that Chairman Cummings exemplified, the truth will give us a second chance to get it right.

I think our video is ready, and then I will turn to our ranking member.

[Video shown.]

Mr. RASKIN. Okay. Now I’m delighted to recognize the ranking member, Mr. Roy from Texas, for his opening statement.

Mr. ROY. I thank the chairman.

Good morning. Before addressing today’s hearing, I’d like to take a moment to express my deepest condolences to the family of Chairman Elijah Cummings, to my colleagues on this committee and throughout the body, and also to his staff. I know it is a great loss.

I know just a couple months ago we were having a pretty nice sparring session here in this committee, as we are wont to do on occasion, and I had referenced my son. In the context of talking about him—my son happened to be here, and he was sitting back here in a chair, and the chairman graciously—this was July—asked to meet my son and sit and talk to him. We got a great photo of my son with the chairman that I will cherish, and I will miss him dearly, as I know many of us will.

As always, I’d like to thank Chairman Raskin for his work with the subcommittee. I appreciate it very much and respect him immensely.

With that, of course, here we go, we’ll start our sparring. I must say, I’m puzzled a little bit as to why the Civil Rights and Civil Liberties Subcommittee is chosen for this topic. We have a Subcommittee on the Environment, and I think that might be a more natural place for it. But here we are.

I would also suggest to you that if you’re wondering why many of our colleagues aren’t here, it’s in significant part because the House majority has created a scheduling conflict. The House major-

ity scheduled depositions today as part of their inquiry. As a result, members have been forced to choose between this hearing and the deposition. That choice is not very easy. So a lot of my colleagues are downstairs, which is where I would be if I weren't in this hearing right now.

You know, in my opinion, there's been a lot of arbitrary rules set by the chairman that makes it difficult. A lot of members feel like they have to be there, because we're not easily able to go find the transcripts. We're not able to go see what's going on.

Now, it's not obviously what we're here to discuss, but it merits at least discussion and recognition that this is what we're having to deal with, is a body right now without our ability to have our colleagues be able to see the information that Mr. Schiff is keeping secreted away in the bunker down below in a SCIF.

But as to the topic that we're talking about here today, I think if you look at this, much of today's hearing has been seemingly orchestrated for some period of time. Some of the witnesses here today I think have been coordinating for years, going to meetings and discussing pursuing congressional hearings and getting sympathetic state attorneys general in an effort to secure documents from different oil and gas companies. The purpose of this hearing seemed to be to stir up a media frenzy and provide a story line for the current court case going on in New York, a case that isn't necessarily even involved, isn't even about allegedly covering up the truth about climate change anymore, but is instead about accounting disagreements in many respects.

Demonizing companies and the Americans they employ for political gain does not seem to be a productive use of our time, while we sit here in an air conditioned hearing room, powered by natural gas from the Capitol Power Plant. That's where we sit.

So let's just remember about how our lives are powered, right here today, with the electricity right here in this room, the air conditioning, the heat in this building throughout the winter, a gas-fired power plant, natural gas being the lifeblood of what we're seeing in a renaissance for energy in the United States of America, creating jobs and wealth and opportunity and developing and improving lives around the world.

Today 815 million people around the world suffer from food insecurity, 900 million do not have access to electricity, and every year 3.5 million die of pollution from biomass they burn inside their homes.

We have significant information demonstrating the explosion of affordable energy has increased the standard of living and nearly doubled life expectancies around the world. Over the past 25 years, more than a billion—a billion—people have lifted themselves out of poverty due in large part to access to electricity.

Now, think about that. I was once in a focus group. Somebody said, "Well, where do we want to get power?"

"Well, not from coal or gas. No, we don't want to get power from that."

"Where do we want to get power?"

The person said, "From electricity."

"Where does electricity come from?"

"It comes from a number of sources."

Texas, by the way, leads the Nation in all-of-the-above approach, in terms of wind and solar being a significant part of the grid in Texas. Yes, that great evil bastion of oil and gas, Texas, that Governor, Governor Perry, who for 14 years was driving an all-of-the-above approach in Texas.

But at the end of the day, our grid in Texas still is massively powered by the dense energy that is available in fossil fuel, making lives better every single day, making a single mom be able to have access to affordable electricity every single day.

Unlike the 54 or 55 million people in Europe choosing between heating and eating every day because of the onerous regulations placed on them, people in the United States of America, including the most vulnerable and the most poor among us, are able to have the lifeblood of power, of electricity, hospitals that are powered up, where babies have incubators that work, instead of people squeezing bags in Africa where you don't have access to power abundantly.

So we sit here today talking about civil rights and civil liberties? Let's talk about the massive violation of civil liberties that will occur if we do as Elizabeth Warren has said: ban fracking. Let's crush the American economy and crush the jobs in not only Texas but around the United States and ban fracking in a fit of hysteria, undermining the very civil liberties of the Americans that depend on that affordable and available abundant energy.

That's what we should be talking about. That's what we should be talking about when we're talking about civil liberties. And that's what I think we hope we'll have the discussion on today in this hearing.

If you look at the number of people that have been driven out of poverty over the last 25 years, compare that to the chart of the doubling, tripling, quadrupling, six times amount available of gas, oil, and coal powering the world that has lifted people out of poverty throughout the world and the United States.

With that, I will yield, Mr. Chairman.

Mr. RASKIN. Great. Thank you very much, Mr. Roy.

I want to welcome our first panel of witnesses. We have Dr. Ed Garvey, a former scientist with Exxon Corporation; Dr. Martin Hoffert, a former consultant to Exxon and professor emeritus of physics at New York University; Dr. Naomi Oreskes, who is a professor of the history of science and affiliated professor of earth and planetary sciences at Harvard University; we have Sharon Eubanks, Esq., who is of counsel to the Henderson Law Firm; and, let's see, we have Dr. Mustafa Ali, who is the vice president, environmental justice climate and community revitalization at the National Wildlife Federation; and Mandy Gunasekara, who is the founder of Energy 45, senior fellow at Life: Powered Project.

I'm going to ask all of you to stand if you would and raise your right hands.

Do you swear or affirm that the testimony you're about to give is the truth, the whole truth, and nothing but the truth, so help you God.

Let the record show that all of our witnesses answered in the affirmative.

Thank you very much. Please be seated. Please speak directly into the microphones. It's hard to capture voices if you're too far away. Without objection, all of your written Statements will be made part of the record.

With that, Dr. Ali, you are now recognized to give a five-minute presentation of your testimony. Forgive me. We're going to start with Dr. Hoffert and work our way down this way.

Dr. Hoffert, you're first.

STATEMENT OF MARTIN HOFFERT, FORMER EXXON CONSULTANT, PROFESSOR EMERITUS, PHYSICS, NEW YORK UNIVERSITY

Mr. HOFFERT. Thank you, sir.

I, too, mourn the passing of Committee Chairman Elijah Cummings, who was a giant in the quest for bringing the American Dream to all, all of us.

I want to thank Jamie Raskin, chair of the House Subcommittee on Civil Rights and Civil Liberties, Ranking Member Chip Roy, who we just heard, and all the subcommittee members, for giving me this opportunity to testify about my personal experience as consultant on the carbon cycle and climate at Exxon Research and Engineering, the issue that is of major importance here.

I was recruited to work at Exxon Research as a consultant by my colleague Andrew Callegari, who headed a group on climate modeling and the carbon cycle at Exxon, and this was in 1981. I made it clear that for the Exxon lab science to be credible and for me to participate the work needed to be published in reputable science journals that were subject to peer review. This was welcomed, and though I remained a paid consultant only until 1987, I continued to publish science work with Exxon colleagues thereafter. Our group published eight peer-reviewed papers, three as a paid consultant and five thereafter.

The work focused on understanding the carbon cycle and on the climatic effects of CO₂ emissions and to bring Exxon colleagues Brian Flannery and Haroon Kheshgi up to speed on the latest research, be it tutorials and eventually published papers. These Exxon scientists were excellent researchers and were soon authoring papers themselves.

I'm gratified that we did important work that is still cited today. And if I may say so, the quality of the scientific work at Exxon was high, and these were published in peer-reviewed journals and incorporated into the knowledge base of how the Earth was evolving under the influence of fossil fuel emissions. But it would be a distraction to go into great technical detail at this point on our findings.

Suffice it to say that our research was consistent with findings of the United Nations Intergovernmental Panel on Climate Change on human impacts of fossil fuel burning, which is that they are increasingly having a perceptible influence on Earth's climate.

Impacts of climate change have become more pronounced over time. Scarcely a day goes by without news stories of major wildfires in the American West, river flooding unseen for hundreds of years, droughts, the disappearance of mountain glaciers, tundra melts, more intense hurricanes, melting sea ice in the Arctic, and glacier

calving in Antarctica. I should say, I never thought that I would see that in my lifetime because of the thermal inertia of the Southern Ocean. Inside joke.

All of which are consistent with the uncertainty spread of IPCC model predictions. If anything, adverse climate change from elevated CO₂ is proceeding faster than the average of the prior IPCC mild projections and fully consistent with what we knew back in the early 1980's at Exxon.

I worked with Exxon researchers for several reasons. First, they were excellent scientists who made positive contributions to the research. Second, I believed that having Exxon scientists on public papers, acknowledging the reality of climate change, could help reduce the polarization surrounding climate change science. And third, I hoped that the work would help to persuade Exxon to invest in developing energy solutions the world needed. I have much to say on this topic, but that's not the focus of this meeting.

I want to emphasize that although my experience with Exxon researchers was positive, I was greatly distressed by the climate science denial program campaign that Exxon's front office launched around the time I stopped working as a consultant—but not collaborator—for Exxon.

The advertisements that Exxon ran in major newspapers raising doubt about climate change were contradicted by the scientific work we had done and continue to do. Exxon was publicly promoting views that its own scientists knew were wrong, and we knew that because we were the major group working on this. This was immoral and has greatly set back efforts to address climate change.

I cannot see into Exxon management's heart. Whatever its intent—willful ignorance, stymieing an effective response to preserve quarterly profits, or simply an incomprehensible refusal to incorporate their own world class researchers' results into their business plans, which is demonstrably counterproductive long-term—what they did was wrong. They spread doubt about the dangers of climate change when its researchers were confirming how serious a threat it was.

The effect of this disinformation was to delay action, internally and externally. They deliberately created doubt when internal research confirmed how serious a threat it was. As a result, in my opinion, homes and livelihoods will likely be destroyed and lives lost.

Thank you.

Mr. RASKIN. Thank you very much, Dr. Hoffert.

Dr. Garvey.

STATEMENT OF ED GARVEY, FORMER EXXON SCIENTIST

Mr. GARVEY. Good morning. Let me start also by saying that I want to express my sympathy to the panel for the loss of the chair. He was a great man and will be missed.

Thank you for the opportunity to speak before the committee. I'm here to testify that Exxon considered rising CO₂ levels and the potential for CO₂-driven climate change to be of sufficient concern to commit to a significant research effort in 1978. I personally participated in the data collection for this research effort, and I had first-

hand knowledge of my management's objectives in collecting these data. I'd like to briefly describe to you some of the pertinent events and the managerial philosophy that was in place during my five-year tenure at Exxon Research and Engineering Company.

I was hired in 1979 to assist a senior scientist at Exxon, Dr. Henry Shaw, in the development of a greenhouse gas research project. Exxon scientists, such as Dr. Black and Dr. Shaw, had raised this as an issue to the corporation. I was told by Dr. Shaw that Exxon undertook this research to earn itself a place at the table among scientists, policymakers, et cetera, regarding climate change and the potential responses to it.

The research was intended to make an important contribution to the understanding of CO₂ and climate science. The program was also intended to constitute a uniquely Exxon contribution to the science.

In developing the program, we worked closely with Drs. Wallace Broecker and Taro Takahashi, geochemists with Columbia University. My managers at Exxon felt that a joint investigation with well-respected researchers, such as these scientists, would lend credibility to the effort.

By working with leading scientists from academia and by contributing highly useful research, Exxon felt its opinions would be taken seriously regarding greenhouse gases and possible solutions to the problem.

We ultimately selected Exxon International's 500,000-ton supertanker, the Esso Atlantic, to set up a dedicated monitoring system. The monitoring equipment would obtain measurements of CO₂ in surface water and in the air as the ship traversed its normal routes. The program's goal was to understand the role of the ocean in the global carbon cycle and its role in storage of anthropogenic CO₂.

Exxon expended a very significant effort to design and support the equipment in the relatively harsh environment on board the tanker, over \$900,000 per year at the program's peak.

Exxon also planned to make known its commitment to the greenhouse gas studies. The videotapes of me on the ship that are now on the internet were made by professional photographers in 1979, with the intention of presenting the program to shareholders.

The tanker project required the cooperation of multiple divisions within Exxon: the Exxon Research and Engineering Company, which employed Dr. Shaw and myself, Exxon International, and Exxon USA. It was my understanding that the Exxon corporate board was aware of the project given its magnitude, approved its implementation, and was kept apprised of its progress.

Around 1980 or so, unrelated to the tanker project, Exxon expanded its research efforts into climate modeling. They hired several scientists from academia, including Dr. Brian Flannery, as well as Dr. Hoffert, to conduct this line of research.

About two years later, the oil market experienced a significant downturn. Exxon began to lay off staff across the corporation and also ended the tanker project abruptly. To that point, we had published only one journal article on our work. I have included a copy of the article with my written statement.

With the end of the project, I opted to leave Exxon in 1983 and continue my graduate studies at Columbia. Although I was very disappointed when Exxon discontinued the study, I am still grateful for the opportunity I was afforded.

In summary, the importance of my testimony is to note that Exxon knew of the anthropogenic climate change issue in the 1970's and considered it a sufficiently important problem to the company, and perhaps to society, that it undertook a major research effort.

While the research at Exxon did not continue long enough to fully interpret the results, the data we collected eventually became part of the scientific work published by Columbia scientists. Although the corporation chose to discontinue this research, it continued to fund climate modeling research for at least several years after it terminated the tanker project.

For the work that I was involved in, Exxon efforts were intended to reduce the uncertainties associated with climate change forecasts and CO₂ cycling. In both instances, the corporation was aware of the potential problem caused by rising CO₂ levels.

Mr. RASKIN. Thank you very much for your testimony.

Dr. Oreskes.

STATEMENT OF NAOMI ORESKES, PROFESSOR, HISTORY OF SCIENCE, AFFILIATED PROFESSOR, EARTH AND PLANETARY SCIENCES, HARVARD UNIVERSITY

Ms. ORESKES. Thank you very much for the opportunity to speak with you today. My testimony is based on 15 years of research on the history of climate science and on the history of attempts by the fossil fuel industry and its allies to mislead the American people about that science.

Scientists have known since the late 19th century that carbon dioxide from burning fossil fuels had the potential to change the Earth's climate. By mid-20th century, the issue was being widely discussed. In 1961, for example, Alvin Weinberg, the director of the Oak Ridge National Laboratory, called carbon dioxide one of the "big problems" of the world, by which he meant a problem, quote, "on whose solution the entire future of the human race depends."

By the late 1960's political leaders were discussing the issue, too. One example was Henry Jackson, the Democratic Senator from the state of Washington. In 1969, Jackson wrote to Lee DuBridge, the science adviser to President Richard Nixon, reacting to a letter from a constituent who had heard about the greenhouse effect on television.

Jackson asked DuBridge whether pollution from automobiles could contribute to the greenhouse effect. DuBridge replied: It is known that high concentrations of CO₂ in the atmosphere will warm the climate. There is little doubt that the automobile contributes a very significant fraction of this carbon dioxide.

Between 1966 and 1970, when Congress held numerous hearings on air pollution, many leading scientists testified about carbon dioxide and climate. Their testimony, along with legislators' detailed and sometimes lengthy discussions of the issue, helps to explain why the 1970 Clean Air Act explicitly states that, quote, "All lan-

guage referring to the effects on welfare includes . . . effects on soils, water, crops, vegetation, weather . . . and climate.”

Fast forward to 1992 when world leaders met in Brazil to adopt the U.N. Framework Convention on Climate Change, which committed its nearly 200 signatories to prevent, quote, “dangerous anthropogenic interference with the climate system.” In signing that convention, President George H.W. Bush promised, quote, “concrete action to protect the planet.”

But that did not happen. And since 1992, climate change has gone from being a prediction to being a fact. We now have clear and convincing evidence not only that manmade climate change is underway, but that it is driving sea level rise, making floods, fires, heat waves, and hurricanes worse, threatening water supplies, and adversely affecting human health.

So why did we fail to prevent dangerous climate change? The answer is not for lack of information or awareness. I submit that a large part of the answer is the systematic, organized campaign by the fossil fuel industry and its allies to sow doubt about the science and prevent meaningful action.

We have heard how ExxonMobil not only knew about the findings of climate science, but until the 1980’s contributed to that science. However, sometime in the late 1980’s or early 1990’s, ExxonMobil changed course. Rather than accept the science and alter its business model appropriately, it made the fateful decision to fight the facts.

For more than 30 years, the fossil fuel industry has deliberately and systematically misled the American people. The details of these efforts are presented in my recent coauthored report, “How Americans Were Deliberately Misled About Climate Change,” submitted as appendix 4.

In that report we argue that the fossil fuel industry did not just pollute the air, they also polluted the information landscape. They did this through false advertising that misrepresented climate science, by collaborating with trade organizations and think tanks to reinforce their misleading messaging, and by attacks, personal attacks, on climate scientists.

Internal industry documents made clear that these activities were intended to undermine public support for action on climate change.

In this sense, disinformation campaigns were adjuncts to the extensive congressional lobbying aimed at blocking lawmakers from passing legislation that might meaningfully address the issue. Between 2000 and 2016, the fossil fuel industry spent more than \$2 billion on congressional lobbying, outspending environmental organizations and the renewable energy sector by a ratio of approximately 10 to one.

In our 2010 book, “Merchants of Doubt,” Erik Conway and I showed that the strategies and tactics used by the fossil fuel industry to disparage climate science, to sow doubt in the minds of the American people, and to block action were the same as those used by the tobacco industry.

We further show that this was no coincidence, because many of the same individuals, PR firms, advertising agencies, and think tanks were involved in both.

Democracy depends on citizens having access to accurate information on which to make informed decisions. As a result of fossil fuel disinformation, the American people have been denied accurate information about a matter that affects our lives, our liberty, and our property. And while the industry has reaped literally billions in profits, hundreds of billions in profits, we, the American people, are now footing the bill for the damage.

Thank you very much.

Mr. RASKIN. Thank you, Dr. Oreskes.

Ms. Eubanks, you're on for five minutes.

**STATEMENT OF SHARON EUBANKS, OF COUNSEL,
HENDERSON LAW FIRM, PLLC**

Ms. EUBANKS. Thank you very much for the opportunity to appear before this subcommittee today. I'm going to take this time to amplify some of the more salient points of my written testimony.

Here in the United States we face a climate emergency. Climate change poses a fundamental threat to human health, ecosystems, and property. We see its effects in coastal flooding, increased severity of storms, changes in precipitation patterns, and sea level rise.

Climate change, global warming, call it whichever, is caused by the emission and accumulation of greenhouse gases in the atmosphere, primarily due to the combustion of fossil fuels—oil, gas, and coal.

So what did the companies know about global warming, the fuel companies? When did they know what they knew? What did they do about it? What legal difference does any of that make? And can they be held liable for their conduct?

In 1958 the industry as a whole was studying carbon dioxide in the atmosphere through its industry organization, the American Petroleum Institute. From 1968 onward, the industry was repeatedly warned of the climate risks of its products, including warnings by their own scientists. Indeed, throughout the 1970's and 1980's, Exxon and other companies and industry associations, like the American Petroleum Institute, worked at the forefront of climate science research.

They also funded academic scientists, especially those who were doing climate modeling. They examined the emerging issue, both in terms of the existential threat to their business, they looked for potential technological solutions, including alternatives to fossil fuels, and evaluated the potential impacts on society and ecosystems. The oil company scientists reported their findings to supervisors and executives within their corporations.

What did these companies do with the knowledge and information that they amassed about the cause and effects of global warming? They kept it to themselves. Instead of disclosure, the industry leaders funded a campaign of disinformation.

A robust and growing body of documentary evidence demonstrates that the major oil and gas companies, whose products are substantially responsible for global greenhouse emissions and the resulting climate emergency we now face, these same companies had early and repeated notice and knowledge of the climate risks and they had plenty of time to develop ways to avoid or to reduce

those risks. Instead, they chose to mount a campaign of disinformation and denial.

We know they did this, and what's more, we know it from their own internal documents. In 1998, a memo entitled "Global Climate Science Communications Action Plan" was leaked to the press. Nicknamed the "Victory" memo, it outlines a multiyear, multi-million-dollar scheme to create uncertainty about well-established climate science.

It was an elaborate plan. The idea was to recruit and train a team of scientists to debunk global warming on radio talk shows, at press briefings, campus workshops, and other types of public outreach.

The plan was developed by a 13-member group of communications and PR firms, in addition to the American Petroleum Institute, Exxon, Chevron, and Southern Company, which is a major utility. The target of that campaign, you guys, Congress. Congress is mentioned at least eight times in this memo. Also targeted are teachers and industry leaders, in an effort to make those embracing the consensus on climate change appear to be out of touch with reality.

The project's first goal, as mentioned in the memo, spotlights Congress, hoping to get a, quote, "majority of the American public, including industry leadership, to recognize that significant uncertainties exist in climate science, and therefore raise questions about those, e.g., Congress, who chart the future U.S. course on global climate change."

The mechanism for sowing confusion about climate science would be a new educational foundation called the Global Climate Science Data Center, with an advisory board of respected climate scientists, so-called, and a two-year budget of \$5 million. The center would be a one-stop resource for climate science for Members of Congress as well as others. Victory would be achieved, the memo states, when recognition of uncertainties becomes part of the conventional wisdom.

It appears that some form of the plan was implemented, and yet that was only the tip of the iceberg. The denial campaign continues today, particularly in the courtroom.

In my written testimony, I highlight the similarities between the actions of big tobacco and what we know about the actions of the fossil fuel industry, similar tactics and lies.

I think of how Henry Waxman showed America the true face of the tobacco industry, exposing decades of deceit. He conducted scores of hearings from numerous committees of all aspects of tobacco. That was congressional oversight, and no one ever said it was easy.

But legislation is needed, and legislation and oversight are conjoined. Hearings make a public record that are necessary and they're proper.

Because of the time when nothing was being done to address global warming, we are now faced with the fact that tomorrow is today. We're confronted with the fierce urgency of now. This is the time for vigorous and positive action, wholly within your jurisdiction.

Mr. RASKIN. Thank you, Ms. Eubanks.

Dr. Ali, for five minutes you're recognized.

STATEMENT OF MUSTAFA ALI, VICE PRESIDENT, ENVIRONMENTAL JUSTICE, CLIMATE AND COMMUNITY REVITALIZATION, NATIONAL WILDLIFE FEDERATION

Mr. ALI. Yes. I would also like to raise up the name of Chairman Cummings, who when I was a Brookings Fellow here on Capitol Hill, was a mentor to many of us, especially young men and young women of color.

Chairman Raskin, Ranking Member Roy, and members of the committee, on behalf of the National Wildlife Federation, our 52 state and territorial affiliates, more than 6 million members, and environmental justice communities across our country, thank you for the honor of testifying before you today.

Today's hearing comes at a crucial time as our most vulnerable communities are in the crosshairs of both public health impacts from the burning of fossil fuels and the impacts of climate change.

My grandmother had a saying: When you know better, do better. Exxon and other fossil fuel companies have known the impacts of their industry on our planet and the health of our most vulnerable communities for decades.

For over 40 years, the environmental justice movement has been placing a spotlight on the disproportionate health impacts that have been happening in communities of color, lower-income communities, and on indigenous lands. They have been collecting, researching, and analyzing their own data through citizen science, and working with colleges, universities, and scientific organizations to highlight those public health challenges and climate impacts they face on a daily basis.

Health impacts of burning fossil fuels include increased respiratory issues, exacerbated allergy symptoms, asthma, cardiovascular disease, and premature death. In the United States, more than 26 million people have asthma.

Communities have also had to battle the misinformation campaigns over the years, a handful of fossil fuel companies that provided funding to scientists to produce biased data. This analysis is used to deny or understate the negative impacts of the fossil fuel industry, discredit the practicality and the value of clean and renewable energy systems, or refute the very existence of climate change and the role of human activity on its proliferation.

Environmental justice communities have often had to deal with the double whammy of fossil fuel pollution that comes from facilities like those owned and operated by Exxon and others. They have to deal with the immediate impacts of exposures to the burning of fossil fuels and to the warming of the oceans and our planet, which contributes to the increases in hurricanes, floods, droughts, and wildfires, just to name a few.

Fossil fuel facilities are disproportionately—let me say that again—disproportionately located in communities of color. From southwest Detroit to Baytown, Texas, to Cancer Alley in Louisiana, communities of color are in the crosshairs of this pollution and have been told not to worry. More than 100,000 people are dying prematurely from air pollution in our country. That's more than dying from gun violence.

More than one million African Americans live within a half mile of oil and natural gas wells, processing, transmission, and storage facilities, not just including oil refineries; 6.7 million live in counties with refineries, potentially exposing them to an elevated risk of cancer due to toxic air emissions. In Tennessee alone, 54 percent of residents living in counties with oil refineries were African American. For reference, African Americans make up around 13 percent of the U.S. population.

Emissions from oil and gas have been linked to over 138,000 asthma attacks and over 100,000 missed school days each year. Approximately 13.4 percent of African American children nationwide have asthma, compared to 7.3 percent of White children. African Americans are exposed to 38 percent more polluted air than Caucasian Americans and they are 75 percent more likely to live in fence-line communities than the average American. Yes, your ZIP Code does determine your health, and what's next to you plays a big role in how long you might live.

Climate change presents the second whammy. It is a global and domestic problem, and our most vulnerable communities are often hit first and worst. Disruptions of physical, biological, ecological systems can lead to significant impacts to wealth and health. It's really quite simple, communities of color carry the burdens for the burning of fossil fuels.

In 2017, there were 16 natural disasters in the United States that exceeded \$1 billion in losses. Hurricane Harvey dropped 27 trillion gallons of rain over Texas and Louisiana, with an estimated cost of \$125 billion, making it the second-most expensive natural disaster. Over 72,000 people needed to be rescued, causing 14,000 National Guard members to be activated to help.

Community members in the Manchester neighborhood in Houston, Texas, and Port Arthur, Texas, are severely damaged by both the water, wind, and the 8.3 million pounds of unauthorized air pollution released in their communities, putting their health at risk.

Hurricane trauma creates high levels of anxiety and post-traumatic stress disorders among those impacted by the storms. Natural disasters increase stressors, further threatening the mental health conditions already facing overburdened and vulnerable communities.

Flood and extreme rains: Heavy participation events, the heaviest one percent of rainfalls now drop 38 percent more in the Northeast, 42 percent more in the Midwest, 18 percent—

Mr. RASKIN. Dr. Ali, if you could just wrap up, because your time is up, sir.

Mr. ALI. I can.

All of that being said, our most vulnerable communities are the ones that are being hit first and worst and being disproportionately impacted. I look forward to answering your questions.

Mr. RASKIN. Thank you very much.

And then, Ms. Gunasekara, you're recognized for five minutes.

**STATEMENT OF MANDY GUNASEKARA, FOUNDER, ENERGY 45,
SENIOR FELLOW, LIFE: POWERED PROJECT**

Ms. GUNASEKARA. Thank you. Chairman Raskin, Ranking Member Roy, and members of the committee, thank you for the opportunity to testify today.

Before I start my testimony, I, like many of my colleagues here, want to express my condolences to the family, this committee, and the larger community for the passing of Congressman Cummings. As a former House staffer, I was inspired by his passion on issues he cared the most, and saw true statesmanship in his willingness to reach across the aisle and engage, not always agree, but respectfully engage with his colleagues.

Climate change is an important issue, and it's one that I personally worked on while serving in President Trump's administration. I was proud to have helped author the first-ever constitutionally viable greenhouse gas emission standard for our Nation's existing coal-fired power plants, the Affordable Clean Energy rule, which replaced the famously stayed Clean Power Plan.

I was also proud to have drafted the legal and policy case for exiting the Paris Climate Agreement, which represents the flawed environmental policies of the last administration that was quick to sell out American workers to curry favor among international elites.

I was also very proud to be a part of the efforts to refocus the agency on its core mission: to protect public health and the environment by addressing tangible issues with practical solutions.

Whereas the skewed priorities and mismanagement from the last administration left EPA with the Flint, Michigan, crisis, the contamination of the Animas River, and an unprecedented backlog of submitted state environmental compliance plans, today's EPA is much more efficient and much more effective.

This hearing, like many we've seen under today's extreme Democrat leadership, is not premised on facts, it's not in pursuit of a better understanding surrounding complex issues of national importance, nor is it meant to produce any meaningful solutions to any of your environmental challenges.

It is an attempt to revive a completely debunked effort aimed at bankrupting one of our Nation's largest energy companies. It is the latest product of a politically motivated campaign hatched years ago by politicians, activists, and well-funded foundations that want to demonize an entire industry and paint them as corrupt institutions that have, in their own words, pushed humanity toward climate chaos.

This hyperbolic rhetoric is dishonest, the purported policies are ineffective, and it represents all that is wrong in the mainstream environmental discussion.

Our energy industry and the men and women who work in it are to be celebrated, not demonized. This country's ability to harness our vast energy resources in a responsible and an efficient manner has changed millions of lives for the better. It is why life expectancy and economic growth, both important indicators of human flourishing, have significantly improved.

Advancements in fossil-based energy and the development of modern economies has provided access to life-saving technologies,

like heat during winter, water treatment, medicine, and refrigeration.

A stark contrast exists today in countries that do not have sophisticated energy systems or access to affordable, reliable electricity. In parts of the developing world, life expectancy today is 10 to 20 years shorter and children under 5 regularly succumb to preventable diseases.

The reality is that we could change these outcomes by sharing our successful energy technologies, not by prohibiting their use as a result of misaligned environmental policies.

Our successful energy industry is also why we lead the world in environmental progress. Advancements in natural gas extraction that led to horizontal drilling have been a key driver of our world-leading emissions reductions. As the International Energy Agency recently stated, U.S. overall reductions represent, quote, “the largest absolute decline among all countries since 2000.”

We also lead the world in clean air progress. Today we are breathing the cleanest air on record, having reduced six criteria pollutants, including lead and ozone, by 74 percent since 1970. We are also home to the cleanest drinking water in the world.

Additionally, the Trump administration has prioritized \$4 billion of investments in replacing aging infrastructure and reinvigorated the Superfund program, which has resulted in the largest number of once-contaminated lands being cleaned up and reintroduced into productive use.

Because these regulatory and deregulatory actions carefully balance the costs and benefits, EPA is advancing environmental protection without forcing the American people to pay excessive costs, either directly or indirectly, through inflated energy costs.

This thoughtful approach is especially important for vulnerable and socio-economically disadvantaged communities that spend a significantly higher portion of their monthly income on energy costs. As such, they are significantly impacted by high-cost environmental policies, some of which have been promoted by members of this committee, like the Green New Deal.

A survey by the National Energy Assistance Directors Association found that in the face of increased energy costs, low-income and fixed-income Americans will forego trips to the doctor, keep their house at unsafe temperatures, reduce medication, and skip meals. No American should be forced to make these types of unhealthy decisions, and the good news is that we don’t have to pick.

President Trump has demonstrated how the best environmental actions are focused on balancing the goals of economic growth alongside reducing pollution, not pitting these interests against each other.

Thank you again for the opportunity, and I look forward to your questions.

Mr. RASKIN. And thank you for your testimony, Ms. Gunasekara.

We are going to now launch into our five-minute-per-member questioning period. We’re going to roll with the punches a little bit because there are so many other hearings that people are in and out of, and I’m going to begin by yielding the first five-minute

block, which I would ordinarily take, to Mr. Gomez before he has to go.

Mr. GOMEZ. Thank you, Mr. Chairman.

At the beginning, we heard from my colleague from Texas who said, why are we discussing the issue of climate change in the Civil Rights Committee and not in the Environmental Committee? It's because when we have denied science for so long, it led to a lack of progress and sincerity of trying to deal with this issue, right, which led to disproportionately impacting people of color, minorities, people in urban areas.

You know, if you really look, where are we going to see high rates of asthma? Minority communities. Where are we going to see a lack of clean air and clean water? Minority communities. Where are we going to see a heat island effect where you see rising temperatures scorching cities? In minority communities. Where are you going to see people paying a disproportionate amount of their income to keep their houses cooler? In minority communities.

Yes, minority communities are disproportionately impacted first and foremost, but we will not be the last communities that are disproportionately impacted. The people who represent rural areas, if you do not think that climate change is coming to your district or to your communities, think again.

Look at Paradise in northern California, devastated by wildfires. We have so many wildfires that we can't even keep track of them in California anymore. And these fires don't go uphill, they go downhill, things that firefighters with years and decades of experience have never ever seen before.

So denying science leads to a denial that we can actually tackle this problem. I'm actually proud that this committee, for the first time, is bringing up this issue in the context of civil rights, because oftentimes communities of color, communities that are most impacted are often the ones that are left behind.

I agree, some policies have to do a better job of targeting resources. I actually passed a bill when I was in the California legislature, 35 percent of all dollars to combat climate change go to the areas that are most disproportionately impacted by climate change, as well as rural areas. And guess what? We had a couple Republicans vote for that bill because they know that their people are also impacted.

So with that, I want to go to my written testimony.

The oil industry's climate-denial campaign represents, I believe, a distortion of democracy. Everyday Americans simply don't have the capacity to get their voices heard the way that the oil industry does, with high dollar lobbyists, fake reports from well-funded think tanks, and scores of television ads.

So I want to just show one of these examples on how this works.

Do we have the video? Can we play the video?

[Video shown.]

Mr. GOMEZ. Well, Dr. Oreskes, can you explain this a little bit?

Ms. ORESKES. Yes. Thank you very much for the opportunity, and in particularly to discuss the issue of the distortion of democracy.

So one of the things we know is that ExxonMobil and other members of the fossil fuel industry have spent hundreds of millions of

dollars on advertising campaigns, false advertisements, reports, documents designed to confuse both the American people and Congress about this issue.

This is just one specific example that we documented in our work that was produced by the Cato Institute. This clip really shows you very clearly how this operates. They produced a report that was designed to look exactly like the National Climate Impact Assessment, but if you compare the reports, what you see is that the Cato Institute, which is not a scientific organization, is actually refuting the findings in the National Climate Impact Assessment, but they do it in this format that is extremely confusing.

Mr. GOMEZ. Why would they do that?

Ms. ORESKES. Well, this is a good question. I mean, you would have to ask them. But they are part of—

Mr. GOMEZ. Speculate.

Ms. ORESKES. They are part of a network that they have been heavily funded by the fossil fuel industry. They have very strong connections to the Koch family and the Koch Industries. So it would be plausible to conclude that this was part of a strategy to prevent action on climate change.

Mr. GOMEZ. So they're not the only think tank that does this kind of thing?

Ms. ORESKES. Not at all. We've counted over 30 think tanks that were involved in the networks that we've studied. The Royal Society back in 2006 did a study of think tanks that had been funded just by ExxonMobil alone, so not including Chevron, Peabody coal, and all the rest. Just Exxon alone had funded 39 different think tanks and organizations that promoted misleading and inaccurate information about climate change.

Mr. GOMEZ. Thank you.

I'm out of time, but thank you so much. I now yield back.

Mr. RASKIN. Thank you, Mr. Gomez.

I now recognize Mr. Roy for his five minutes.

Mr. ROY. Well, Mr. Chairman, let me first ask for unanimous consent for Mr. Comer to participate in today's hearings.

Mr. RASKIN. Without objection.

Mr. ROY. With that, if Mr. Comer is ready, I will turn it over to him.

Mr. RASKIN. Mr. Comer, welcome.

Mr. ROY. I'm not yielding my time, but for him to use his time.

Mr. RASKIN. Fair enough.

Mr. COMER. Thank you, Mr. Chairman.

And thank you all for being here today.

My first questions are going to be for Dr. Garvey and Dr. Hoffert.

You all, at any time while you were working with ExxonMobil's Research, was their research out of step with the academic research community at that time?

Mr. GARVEY. No, it was not.

Mr. HOFFERT. No, it was not. It was not. It was basically reinforcing academic research all over the world as reflected in the Intergovernmental Panel on Climate Change, which summarizes all the peer-reviewed research on climate change all over the world.

Mr. COMER. Was any of your all's work ever published in scientific journals?

Mr. GARVEY. There was one article published from the tanker project directly, and then some of the data was published in other articles by Columbia University.

Mr. HOFFERT. Yes. Our work was profusely published, and it's not easy to do. You have to get two peer reviewers. And these were quality journals.

All in all, and there are eight papers on Exxon's own list of 100 papers that they wrote or they contributed to, in climate change that were produced by our group. And as I said in my introductory statement, from 1981 to 1987, when I was a paid consultant, and I continued to cooperate after I was a paid consultant with my Exxon colleagues, we published five more papers in peer-reviewed journals.

Mr. COMER. Mr. Chairman, the New York attorney general and many others leading climate change litigation efforts across the country would have us believe that the oil and gas industry hid key science for decades from the American public. Publishing work that is consistent with academic research in scientific journals seems like an odd way to go about hiding anything, and I just wanted to make that point.

Now, Ms. Gunasekara, my question for you. Environmental activists have acknowledged that one of their goals is to encourage strategic litigation that would bring internal company documents into the public domain. These documents would then be used to develop negative narratives about the oil and gas companies.

Do you believe these lawsuits are really in the best public interest?

Ms. GUNASEKARA. No, I don't. I don't believe they're good for the American people.

And when it comes to what they purport to do, which is improve the environment, it has no relative impact, whether you're talking about these frivolous lawsuits protesting the Keystone XL pipeline or encouraging divestment. That has no real impact on the environment and it does nothing to advance the interests of the American people.

Mr. COMER. Well, then, how does taking money from companies that are driving innovation and giving it to trial lawyers help the American people?

Ms. GUNASEKARA. I don't think it helps them at all. I think that drivers of innovation are where the solutions to any current and future challenges will come, and it's in the best interests of policymakers and the American people to seek out and support these institutions, not to demonize them in the ways that we've seen from this relative campaign.

Mr. COMER. Right. I know that you were involved in the President's decision to withdraw from the Paris climate agreement. Can you talk about the reasoning behind his decision to do that?

Ms. GUNASEKARA. Yes, absolutely. It came down to a number of factors, but most notably the fact that it was going to ship American jobs overseas to countries like China and India that don't use basic pollution control technology our industrial operators have been using for decades.

So you were going to take economic opportunity and jobs, ship them overseas, and then exacerbate air quality issues, some of

which are finding their way over here to this country, and undermine efforts to reduce greenhouse gases.

Mr. COMER. I think that my questions make a solid point that at the time the industry was doing exactly what we as Americans wanted and there was no scientific data to diminish the job that the oil and gas industry was doing with what Chairman Roy said in providing our standard of living, fueling our tremendous economy, doing things that help Americans live longer than people from other countries.

So this is something that we've talked about in the Environment Subcommittee many times. We've had this climate change topic with at least three committee hearings in the Environment Subcommittee.

So I just wanted to make that statement. Demonizing these countries, fueling trial attorneys to have more frivolous lawsuits is not going to achieve any objective that we have today as we move forward to talk about ways to improve the climate.

So with that, Mr. Chairman, I yield back.

Mr. RASKIN. All right. Well, thank you for joining us today.

And we go now to Ms. Kelly, the pride of Illinois's Second District.

Ms. KELLY. Why, thank you, Mr. Chair.

We've heard from Dr. Oreskes and Ms. Eubanks about how oil companies other than Exxon engaged in climate denial. So I want to turn to some other examples of oil industry deception.

In 1997 a Mobil Oil ad claimed that scientists cannot predict with certainty if temperatures will increase.

Dr. Hoffert or Dr. Garvey, by 1997 would it be fair to say that the scientific community had reached its consensus that global warming was really a threat?

Mr. HOFFERT. I think we would probably both agree that that consensus was forming and had almost been totally clinched.

Scientists are actually very self-critical. That awareness may not be widespread. But when you publish a result in a scientific journal, the whole point is to be mercilessly critical of the result because we want to have faith that what we're publishing is accurate, it's going to be the basis of other people's research.

And over time, and you can track this through the Intergovernmental Panel on Climate Change reports, many of which were attacked by climate change deniers, there has been an increasing certainty that humans are responsible for major climate change. As a matter of fact, geological scientists call the present era the Anthropocene, meaning that it is humanly created, the basic changes in the geophysics of the planet.

Ms. KELLY. Thank you.

Dr. Garvey, any comment?

Mr. GARVEY. No, I agree with Dr. Hoffert.

Ms. KELLY. Okay.

Ms. ORESKES. Could I just quickly join in on this?

But this ad is deeply misleading because in 1995 the IPCC had reported in its second assessment report that the balance of evidence suggested a discernible human impact on climate. So there was a consensus among scientists that climate change was underway.

But this is a classic example of the denialist's tactics by throwing in certain adjectives, for example, where changes will occur. That's technically true. It was not possible then and even now very difficult to say exactly where particular changes will occur. So by throwing in these little key adjectives, they present a claim that is deeply misleading and yet difficult to refute.

Ms. KELLY. Okay. Thank you.

Would it be fair to say that this statement was likely, as I think you're trying to say, crafted to deceive the American public about climate change?

Ms. ORESKES. Yes, I think it would be extremely fair to say that.

Ms. KELLY. Okay.

In 1996, just one year before this ad, Mobil Oil engineers building facilities along the coast of Nova Scotia factored climate change, including rising temperatures and sea levels, into their structural plan. This included raising the height of their oil rigs an additional two meters above sea level.

Other oil companies took similar precautions to protect their investments while publicly dismissing the risk of climate change. In 1989, Shell Oil engineers redesigned a natural gas pipeline in the North Sea to account for rising sea levels as a result of global warming.

Dr. Oreskes, would you agree that oil companies took steps to fortify themselves against the effects of climate change while simultaneously depriving the American public of the necessary information to prevent climate change?

Ms. ORESKES. Yes, absolutely.

Ms. KELLY. This stark contrast between public statements and private action is not just a thing of the past. In recent years, oil companies have begun to publicly acknowledge the existence of climate change.

For example, Shell has added a page to their website urging action to fight climate change, as you can see. On this page Shell says, and I quote, "The climate is changing and human activities appear to be to blame, yet people still question the science evidence. Why do you think that is? Can there be any doubt?"

Again, what is behind this supposed change in tune and what are your thoughts on Shell's assertion that people question the scientific evidence?

Ms. ORESKES. Well, I mean, it's hard not to want to laugh at that. I mean, why do we think that that is? Because of the 30-year campaign that Shell participated in to say—to create doubt and to question the scientific evidence? So again, this seems to be part of a strategy and tactic to deny their own role in this confusion.

Ms. KELLY. Thank you.

Dr. Ali, you have spoken at length about the unequal burden of climate change and the effects we have seen in communities of color. In that context, what does it say about the company's continued oil exploration, say about how they value the lives of people of color?

Mr. ALI. It says that they don't value the lives of people of color or they value them less.

Ms. KELLY. Thank you for that statement.

I'm running out of time, so I have to yield back on that.

Mr. RASKIN. Thank you very much.

I would go to Mrs. Miller. You're recognized for five minutes.

Mrs. MILLER. Thank you, Chairman Raskin and Ranking Member Roy, and thank you all for being here today.

I am proud that my home state of West Virginia fuels the Nation and the world. Natural gas from my state provides a cost-efficient and reliable base load to keep the lights on in our homes, schools, and businesses. West Virginia natural gas also helps fill in during the times when renewables cannot keep the lights on.

The United States consumes about 12,000 kilowatts per hour per capita. Germany and France come in at about 7,000 kilowatts per hour per capita. Right now, because of American coal, oil, and natural gas, we have made great strides in ensuring energy costs remain low and quality of life remains high.

Between 2005 and 2017, the United States reduced emissions by nearly 1 billion tons, and we are expected to continue to reduce emissions in 2019 and 2020. We did this by still utilizing coal, natural gas, and fossil fuels.

Global energy demand is going to continue to grow and demand for hydrocarbon-based fuels will be crucial to meet this demand quickly and cost efficiently. Further, it is crucial that we keep energy production in the United States. We produce, manufacturer, and export with fewer emissions, employ millions of Americans, and are able to invest in technology, like carbon capture, to export around the world.

Dr. Oreskes, thank you for testifying today. Do you acknowledge that there is a flaw in your study where two-thirds of the advertorials cited are from two different companies?

Ms. ORESKES. Not at all. I do not agree with that statement. ExxonMobil is one company. When Exxon and Mobil merged they became one company and the merged company took on both the assets and the liabilities of both individual companies.

Furthermore, in our followup work to the study that you're referring to, Geoffrey Supran, who's here with me today, and I have shown that Mobil took out misleading advertisements prior to the merger, but so did Exxon.

We also know, we also have evidence that scientists at Mobil, just like scientists at Exxon, were communicating with academic researchers, were informing their company of the results of those research—

Mrs. MILLER. What year did they merge?

Ms. ORESKES. I'm sorry. I don't remember.

Geoffrey, do you remember the year of the merge?

I'm sorry, I don't remember, but I can get you that information.

Mrs. MILLER. Thank you. Thank you.

Ms. ORESKES. But we can demonstrate that both companies, both before, and ExxonMobil continued misleading advertisements after the merger.

Mrs. MILLER. I'd like you to prove that.

Moving on, Ms. Gunasekara, can you elaborate how the United States has been a leader in reducing emissions?

Ms. GUNASEKARA. Yes, absolutely.

According to the Energy Information Administration here in the United States, we have reduced our energy-related CO2 emissions

by about 14 percent from 2005. Compare that to the rest of the world that has increased their emissions by 20 percent.

A large driver of this, as I mentioned in my testimony, is the fact that we have inspired and supported innovations in the energy industry, fossil-based energy industry, that will continue to be an important source of reliable and affordable electricity.

And because we have spurred continued investment in these types of innovations from extraction to refinement, use, and then transmission, we have the cleanest, most efficiently produced energy in the world.

Which is why we spent significantly less, from the Federal Government perspective, having these types of outcomes, whereas you look at some places, like Germany and France, that have embraced these top-down, overarching, expensive approaches, they spent billions of dollars but don't have equivalent emission reduction to actually show for it.

Mrs. MILLER. Thank you.

How would moving to a full renewable scheme come at the detriment to the American jobs, the economy, and the environment?

Ms. GUNASEKARA. It would be hugely devastating because it would make the price of energy immediately go up. Wind and solar have a role in a diverse energy mix, but not a base load role. And when it comes to ensuring access to affordable and reliable energy, you have to have a base load power source that today is provided by primarily natural gas and coal, as well as nuclear energy.

So a shift to wind and solar, which is primarily what folks are talking about in this context, we'd have to get used to rolling black-outs, because when the wind doesn't blow and the sun doesn't shine those energy sources don't provide the energy needed to fuel commerce and to get people to where they need to go.

So it would not only be hugely detrimental to the day-to-day life standard of living for everyone, but it would undercut our ability to compete in an increasing global atmosphere where jobs and economic productivity would no doubt be shipped to overseas countries that don't ascribe to environmental protections that are remotely similar to what we do here in this country.

Mrs. MILLER. So it would be detrimental to everyone?

Ms. GUNASEKARA. Yes.

Mrs. MILLER. Thank you.

I yield back my time.

Mr. RASKIN. Thank you very much, Mrs. Miller.

I recognize now the gentlelady from the Commonwealth of Massachusetts, Ms. Pressley.

Ms. PRESSLEY. Thank you, Mr. Chairman.

There's an old adage in my home community that says: When everyone else catches a cold, Black folks catch pneumonia.

The point is, everyone is sick. The issue is just at varying degrees of disease, of illness. And that is certainly true when it comes to the climate crisis. It is felt by all of us, but the greatest burdens are borne by the most vulnerable people of color, low-income communities, immigrants, and non-native English speakers, all communities most at risk of poor health outcomes and least able to relocate or to rebuild after a disaster.

And my district, the Massachusetts Seventh, one of the most vibrant, diverse, and unequal districts in the country, is certainly not immune. From Chelsea to East Boston many of my residents are vulnerable to rising sea levels, extreme heat, and poor air quality. In the Chinatown neighborhood in Boston, a predominantly immigrant and low-income community that falls at the crossroads of two major highways, my constituents breathe some of the most toxic air in all of Boston. Over the last several years, asthma rates at the Josiah Quincy Elementary School, which is in the heart of the Chinatown, have jumped from 18 to 25 percent.

Adding insult to injury, these issues aren't a coincidence. They are outcomes borne out of decades of racial, economic, and social injustice, manmade policies that have been worsened by the greed and deceit of the oil and fossil fuel industry.

Now, burning fossil fuels are one of the greatest drivers of the climate crisis, and the oil industry has worsened the problem by delaying action through its denial campaign and engaging in insidious campaigns to directly embed themselves in communities most vulnerable.

Dr. Ali, why do oil companies locate their facilities in these communities and how do cities depend on them?

Mr. ALI. In many instances they feel that these are the areas of least resistance. When these companies move in property values go down for the folks who are on the fence lines, healthcare costs go up because they are being impacted. And, as you said, there is a systemic racism aspect to this, and that's one of the reasons that there's a conversation about civil rights.

So we have to be focused, because what we find is that communities are being not only impacted, but broken apart. Communities like Princeville, North Carolina, which was founded by freed slaves and hit by 100-year and 500-year floods. You have places like in Louisiana where indigenous folks have had to move down, at the Isle de Jean Charles, had to move away from their traditional lands.

We can literally go down the list. You can look in southwest Detroit in the 42817 where folks are literally right next to a refinery and they literally can't breathe.

I wish that the Members would actually go to these communities and spend real time. When you go to the Manchester community in Houston, Texas, primarily a Latino, hardworking community, when you roll the windows down in your car you feel like you're breathing in gasoline fumes, and that is from the refineries.

Ms. PRESSLEY. Thank you, Dr. Ali.

And speaking of Texas and Houston, specifically, a major hub for the oil and gas industry and is known as the world capital of energy, Houston was also hit very hard by Hurricane Harvey, a storm which reached unprecedented levels of intensity because of climate change. Harvey dumped so much rain on Houston that the National Weather Service had to add new colors to its rainfall chart in order to effectively map it.

We know evacuation can be expensive. Dr. Ali, yes or no, when massive storms occur like Hurricanes Harvey or Maria, is everyone able to evacuate?

Mr. ALI. No.

Ms. PRESSLEY. And who is usually left behind?

Mr. ALI. People of color, low-income communities, and sometimes indigenous populations.

Ms. PRESSLEY. Eleven different oil refineries, including Exxon's Baytown, were forced to shut down their operations and flare off excess chemicals. Now, oil refineries are designed to run 24/7, so when they shut down it causes massive spikes in pollution. According to a 2017 news report, Baytown, quote, "released about double the amount of volatile organic compound, a broad category of air toxics, than its permit normally allows," unquote.

Dr. Ali, how does this excess pollution affect the people who aren't able to evacuate the area?

Mr. ALI. They're trapped. They're trapped, and they are exposed to these chemicals, and they have breathing difficulties. You find these asthma bursts that happen. You find people developing liver and kidney disease because of these additional emissions that are going on.

Ms. PRESSLEY.

[Presiding.] Thank you.

It's clear we must act today. We must act in this moment. I second the impassioned comments of my colleague, Representative Gomez, and also express my pride in that this topic is before the Civil Rights and Civil Liberties Committee today, appropriately so.

I now recognize Mr. Massie for five minutes of questions.

Mr. MASSIE. Thank you very much.

Dr. Hoffert, do you support a CO2 tax?

Mr. HOFFERT. You're asking me directly. Yes, I do but—sorry. I always forget this.

Mr. MASSIE. Did you say yes, you support a CO2 tax?

Mr. HOFFERT. Yes, but it's not—I don't think the question is properly formatted.

Mr. MASSIE. Okay. Well, I get to ask it. I'll ask you another followup.

Mr. HOFFERT. I understand. A carbon tax. Depends on the details.

Mr. MASSIE. Reclaiming my time.

Mr. HOFFERT. Yes.

Mr. MASSIE. Reclaiming my time.

Dr. Garvey, do you support a CO2 tax?

Mr. GARVEY. I support that the Congress needs to deal with the problem and decide how best to manage CO2.

Mr. MASSIE. Do you think it's a good tool to do it?

Mr. GARVEY. I'm not a legislature.

Mr. MASSIE. So you're not qualified to comment on that.

Mr. GARVEY. That's correct.

Mr. MASSIE. Okay. Thank you very much.

Dr. Oreskes, do you support a CO2 tax?

Ms. ORESKES. Well, let me say that I'm not an expert on taxation policies, but leading economists around the globe, including my good colleague Nicholas Stern, with whom I have an op-ed piece in today's New York Times, who wrote the Stern report, former economist at the World Bank, he and virtually all of his colleagues do think that carbon pricing is an effective way to address the issue without damaging the economy.

Mr. MASSIE. Okay.

Ms. Eubanks, do you support a CO2 tax?

Ms. EUBANKS. Not necessarily.

Mr. MASSIE. Okay.

Dr. Ali, do you support a CO2 tax?

Mr. ALI. Not if it creates hot spots and hot zones.

Mr. MASSIE. So there are only two people here that support a CO2 tax.

Dr. Hoffert, what should the tax be per ton?

Mr. HOFFERT. I prefer something called a fee-and-dividend tax, you're probably familiar with it, because it uses market mechanisms, and essentially all of the money collected, except for administrative fees, would be returned to taxpayers. I think that given the polarization in the United States—

Mr. MASSIE. Can you tell me what the fee would be?

Mr. HOFFERT [continuing]. that would be the most viable way to—

Mr. MASSIE. Can you tell me what the fee would be?

Mr. HOFFERT. I can't, because I haven't prepared the specific numbers on that.

Mr. MASSIE. Okay.

Dr. Oreskes, what would your fee be?

Ms. ORESKES. Well, it wouldn't be my fee. I think that's a very unfair way of posing the question. I think this whole line of questioning is a bit weird for this committee. But since you asked—

Mr. MASSIE. It's not weird because the presumption—let me get to my point here, which you all are doing a great job of making.

The presumption of this hearing being held in the Civil Rights and Civil Liberties Committee is that somehow raising the price of energy would help the economically challenged in our society.

Ms. ORESKES. Okay.

Mr. MASSIE. Ms. Gunasekara, can you talk about the impact of the price of energy on—

Ms. ORESKES. Well, could I answer that?

Mr. MASSIE. No, I'm asking—you had a chance.

Ms. Gunasekara, could you talk about the impact of the rising price of energy if there were a CO2 tax on vulnerable populations?

Ms. GUNASEKARA. Yes. And let me say for the record, I do not support a tax on CO2, primarily because it would increase the price of energy and electricity. We know the impacts because you've seen this happen in Germany where energy and electricity is now a luxury commodity.

So a significant number of studies were done during the last administration assessing the impact of cost increases affiliated with their Clean Power Plan.

One of the studies that stood out to me was from the Black Chamber of Commerce that found that it would result in hundreds of thousands of less jobs in the Hispanic and Black communities, as well as communities where people are living on fixed-income or low-income budgets.

It would force them to make decisions where they forego meals, they keep their house at unsafe temperatures, they stop going to the doctor, and they don't seek out preventive healthcare because

of the costs that they're trying to save in order to afford expensive electricity.

Mr. MASSIE. Thank you very much.

Dr. Ali, you stated that most of the refineries are located in minority communities. Is that true?

Mr. ALI. I said disproportionately located.

Mr. MASSIE. Disproportionately located. Can you give us an example of one that's not?

Mr. ALI. That's not located in a community of color?

Mr. MASSIE. Yes.

Mr. ALI. No, I can't, not at this—

Mr. MASSIE. Let me give you an example. There's one in my district, and it provides jobs. It's actually one of the best things that's ever happened to our district because we have a problem with brain drain in eastern Kentucky. People grow up, they want to get an education and get a career in STEM. And the one opportunity we have is at that refinery.

I worked there three summers while I was a college student. The only opportunity that I had to get a job in science, technology, engineering, and math, was at that refinery.

If you could wave a wand and make those refineries go away from the communities of color, would you do that?

Mr. ALI. I always honor the work that has happened in the past when we didn't have other opportunities for different types of energy sources. I would.

Mr. MASSIE. Would your community be better—would those communities be better off or worse off without those jobs in those refineries?

Mr. ALI. That's why we talk about a just transition. That's why we talk about getting advanced manufacturing opportunities. That's why we talk about solar, wind, thermal.

Mr. MASSIE. Would you answer my question? Are you better off or worse off with that refinery in those communities?

Mr. ALI. You're worse off because of the health impacts, and you can get other types of industries in those areas.

Mr. MASSIE. Well, if they leave those communities, please send another one to my congressional district, because it has been a god-send to our congressional district, particularly for the people who need jobs.

Mr. RASKIN.

[Presiding.] The gentleman's time is expired.

You can answer the question if you'd like to do.

Mr. ALI. We have a huge amount of opportunity if we make the proper investments in wind, solar, thermal, tidal, and wave energy, and some of the new developing opportunities that exist in that space.

I come from Appalachia. I understand and I honor the culture of coal in the past. But I also see that other countries will take advantage of these new opportunities in this new clean economy if we don't make those investments.

These are jobs that can stay here at home. We can train our workers. We can make sure that folks who never had an opportunity to have businesses can start their own businesses. And I hope that we can make sure that in Kentucky and West Virginia

and Ohio and all across our country we create these new opportunities for folks.

Mr. RASKIN. Thank you very much.

Okay. I'm going to recognize myself now for five minutes.

I want to start with this. Dr. Oreskes, I noticed a kind of progression in the arguments denying the science.

Some used to be just a flat-out categorical denial that climate change is taking place.

Then I started to notice that some of the skeptics were accepting the science, but they were denying that there was a role that humanity had played. They said: Well, there's sort of a natural ebb and flow in the climate.

Then I noticed some of them were accepting that there was an anthropocentric role in climate change, but they were arguing that it's actually good for us, that the heating of the climate will actually have some positive effects.

Others of them say: Well, it's bad for us, but it's too late at this point to do anything, so we may as well enjoy it.

I wonder, has anybody tried to actually compile a comprehensive study of the different—the changes in the evolution of climate denialism?

Ms. ORESKES. Yes, thank you for that question. In our own work, we've documented this. So have a number of other scholars. And I think we have actually just witnessed this in this very last few minutes.

One of the denying and disinforming talking points now is this claim that carbon pricing will increase the price of energy. That is false, and it's false on two levels. It's false because it won't increase the price of energy, it will increase the price of carbon-based energy.

And that's the whole point. The point is to level the playing field because carbon-based fuels have received gigantic subsidies, both in the United States and around the globe, and to allow renewables to compete on a level playing field.

In addition, and this is very important, so please bear with me. We used a pricing system to deal with acid rain, and that was brought in by a Republican President, President George H.W. Bush, who, under the Clean Air Act amendments which he signed, introduced a pricing system for the pollution that caused acid rain. It was an emissions trading system.

Everyone who opposed it said it was going to increase the price of electricity, and all the same arguments that we've just heard today were used. And guess what? The price of electricity in the Midwest fell and we cleaned up acid rain.

Mr. RASKIN. I'm curious about what happens to climate scientists. You mentioned someone named Benjamin Santer. Can you tell us what happened to him?

Ms. ORESKES. Yes. Well, one of the things we've seen over the last 30 years are personal attacks on climate scientists designed to undermine their integrity and credibility so that the American people will distrust scientists.

So Ben is the scientist who first proved that climate change could not be attributed to changes in solar radiation. He was the lead author of a crucial chapter in the second assessment report of the

IPCC. And he became a target of an organized, systematic effort, led by the George C. Marshall Institute, one of the think tanks that we've written about, accusing him of scientific misconduct, accusing him of fraud. Even though every single person who was involved with the report denied those claims, all said that he had done nothing wrong, this was repeated over and over again.

And I'd like to point out——

Mr. RASKIN. So he was actually demonized and vilified by the oil industry——

Ms. ORESKES. Correct.

Mr. RASKIN [continuing]. rather than him demonizing them.

Ms. ORESKES. Exactly. Thank you.

And if I could just point out, the George C. Marshall Institute folded a few years ago. They became the CO2 Coalition. Energy 45, which Ms. Gunasekara represents, is part of that coalition. This is a coalition with a history of personal attacks on climate scientists, personal attacks on loyal employees of the U.S. National Laboratory system.

Mr. RASKIN. Thank you.

So the denial campaign goes beyond distortion of the climate science. It actually goes into intimidating and silencing dissenters.

Ms. Eubanks, do I understand correctly that after the New York attorney general began taking action against Exxon, that Exxon sued the attorney general? Is that right, Ms. Eubanks.

Ms. EUBANKS. Yes. Exxon sued the attorney general and it also——

Mr. RASKIN. Where?

Ms. EUBANKS. In Texas.

Mr. RASKIN. Why in Texas?

Ms. EUBANKS. Friendly forum.

Mr. RASKIN. Was there any merit to their suit?

Ms. EUBANKS. That was a frivolous lawsuit. The New York attorney general lawsuit, that's not a frivolous lawsuit.

Mr. RASKIN. Was it thrown out? Was that lawsuit thrown out?

Ms. EUBANKS. So far it has been. But what was interesting, furthermore, is that Exxon subpoenaed all of the attorneys who appeared at a meeting in La Jolla back a few years ago for any information that they had about a gathering to discuss climate change and responses to it.

Mr. RASKIN. So how does this compare to strategies that were undertaken by the tobacco companies which retaliated against people criticizing them?

Ms. EUBANKS. They're very much the same, you know. Both organizations, tobacco, big oil, lied about what they knew and when they knew it, and as a result, you know, people died, basically.

Mr. RASKIN. Thank you.

Dr. Hoffert and Dr. Garvey, it seems as if there was a moment when Exxon was very invested in trying to figure out what the impact would really be of all of the CO2 emissions and what might be done. Then it seems as if the strategy changed and they decided we're just going to try to suppress the findings and confuse the public about it.

Why do you think that took place? And was there actually a moment when they decided to change course, Dr. Garvey?

Mr. GARVEY. Well, I can say that in 1982, when the oil market collapsed and there were significant reductions in the price of oil, Exxon really retrenched in terms of its research expanse, if you will. At that point in time they began to sell off major divisions of their research company, things like lithium battery research and other divisions of the Exxon Research and Engineering Company, as they retrenched and focused solely on oil.

So there was really a sea change that occurred sometime in the mid 80's to the early 1990's where they had gone from this very broad-based, very future-looking energy company to becoming an oil company. That was very evident to me as I watched the different divisions become sold off.

Mr. RASKIN. Thank you.

I'm afraid my time is up. I am going to now recognize Mr. Roy for his questioning.

Mr. ROY. Thank you, Mr. Chairman.

Dr. Oreskes, a quick question. Would you agree with the statement that scientific studies should be conducted in a manner that doesn't dictate results and with a methodology that avoids bias by researchers as a general matter? Yes? No?

Ms. ORESKES. Yes.

Mr. ROY. Is it true that in 2015, 2016, before you conducted the report that has been discussed a lot, that you tweeted, quote, "Did Exxon deliberately mislead the public on climate change? Hello. Of course they did," and that you tweeted, "Exxon's actions may have imperiled all of humanity, it's time to divest"? Yes or no, did you tweet those things prior to your report?

Ms. ORESKES. I believe it was after the report, but I could check on that.

Mr. ROY. Okay. Well, I've got data that shows those tweets were before your 2017 report.

Ms. ORESKES. Okay. Could be. Could be.

Mr. ROY. Is it true that you are at least—you and your partner or your coauthor are at least partially funded by the Rockefeller Foundation?

Ms. ORESKES. We received a very small amount of money, \$5,000, from the Rockefeller Family Fund, yes.

Mr. ROY. Okay. Thank you. And did you and a number of the people that are involved in this discussion about Exxon appear at a summit in 2012 discussing these issues long before the report was done in, I think, La Jolla?

Ms. ORESKES. A summit? I'm not—

Mr. ROY. Yes, La Jolla.

Ms. ORESKES. We, as Sharon Eubanks, as Ms. Eubanks just said, a group of us got together to discuss in La Jolla how we could address the disinformation campaigns that we had documented in our research.

Mr. ROY. Okay. Thank you for that answer. So there's a coordinated effort, at least on whatever side you want to point to—

Ms. ORESKES. I wouldn't call it coordinated. It was an academic discussion.

Mr. ROY. Okay. Because there's no coordination in academic discussions. Let me ask you—

Ms. ORESKES. No. If you've ever been in academia, you know there's no coordination.

Mr. ROY. In 2018, what was the relative mix of energy portfolio in the United States? How much of it was fossil fuels and nuclear versus renewable?

Ms. ORESKES. I believe about 20 percent is renewable energy.

Mr. ROY. Okay. The data I have has 84 percent as fossil fuels and nuclear power.

My point being and my question I'd say to Dr. Ali, you mentioned in response to my colleague from Kentucky, you said something in the ZIP Code of honoring the culture and talking about coal with respect to the past because of your history in Appalachia.

I think my question is then, as we're sitting here, and this is a hearing looking backward at what Exxon may have said or done, if I heard you correctly, you're saying you think it's appropriate to honor the efforts of companies in the past that produced the energy that is now resulting in 84 percent of the energy that we have in the United States.

Mr. ALI. I honor the workers. I honor the workers in that city.

Mr. ROY. Okay. And who employs those workers?

Mr. ALI. Well, of course, they're employed by whomever owns those respective companies.

Mr. ROY. And who owns those corporations?

Mr. ALI. The owners.

Mr. ROY. The stockholders.

Mr. ALI. Well——

Mr. ROY. And where does that, where do those stocks lie?

Mr. ALI. In the hands of——

Mr. ROY. In many people's retirement accounts.

Here's my point. My point is we have companies that are creating energy for the world. Eighty-four percent of the energy that the United States of America uses is produced by fossil fuels, roughly 63, 64 percent, and 20 percent nuclear.

Which brings me to another point. Dr. Hoffert, yes or no, do you support nuclear power?

Mr. HOFFERT. I do.

Mr. ROY. Dr. Garvey, do you support nuclear power, yes or no?

Mr. GARVEY. I do.

Mr. ROY. Dr. Oreskes, do you support nuclear power?

Ms. ORESKES. I do not.

Mr. ROY. Ms. Eubanks, do you support nuclear power?

Ms. EUBANKS. No.

Mr. ROY. Dr. Ali, do you support nuclear power?

Mr. ALI. Not until we learn how to properly be able to deal with the waste streams that come.

Mr. ROY. Ms. Gunasekara, do you support nuclear power?

Ms. GUNASEKARA. Yes.

Mr. ROY. Why? Quickly, you may.

Ms. GUNASEKARA. Well, it's the largest source of reliable base load energy that is zero emission. It's one of the safest forms——

Mr. ROY. Right.

Ms. GUNASEKARA [continuing]. of electricity and will continue to be a part of our diverse energy——

Mr. ROY. I'm always amazed at those who believe that the sky is falling within 10 years that will refuse to say that we should adopt nuclear power. Because if you want abundant energy to power the United States of America, to get these buildings lit up, to have electricity flow around the world in order to make people, lift them out of poverty, the billion people that we blithely ignore while we go around talking about things that sound good in Davos and go in the cocktail circuits talking about climate change, ignoring the 1 billion people that have been lifted out of poverty, we could solve these problems with nuclear power.

Yet the left comes in here and says: We don't want to adopt nuclear power in most respects. I'll give some credit to Secretary Kerry, who in this very room said, yes, we should adopt nuclear power, and to Dr. Hoffert for saying so and Dr. Garvey.

Here's a point that I'd like to make in concluding. My grandfather-in-law, my wife's grandfather, Alan Key, moved to the panhandle of Texas in the 1930's after growing up in a very, very poor household in Arkansas. He lived by himself in a cabin, dirt floors, worked himself up working for Phillips Petroleum. For 55 years, he worked for Phillips Petroleum working in a plant in Phillips just outside of Borger, Texas, his whole life. He passed away at 94 years, 94-years-old.

His work, working for those companies, allowed my wife, her brother, to go to Texas A&M University, the children of a single mom, because he worked his whole life there helping produce the very lifeblood of our economy.

And forgive me for getting a little aggravated when, yes, Texas is being attacked directly. I'll put aside all the highfalutin stuff about what energy does for the rest of the world. You want to talk about minority impact? Go look at Africa and sub-Saharan Africa. How do we get power to Africa?

Lifting people out of poverty around the world because of clean abundant energy that we can make available to the world, that's what should be our motives, that's what should be our goals. This is what should be motivating us instead of talking about what theoretical impacts might be existing here as opposed to the direct, calculable impacts on people's lives by clean abundant energy available to them every single day.

Thank you, Mr. Chairman.

Mr. RASKIN. All right. Mr. Roy, I just want to say, at least on behalf of myself, I assume I speak for a lot of people on the panel, none of you have ever—or at least I've never been to Davos, and I'm not on the cocktail circuit. I'm pretty much a prohibitionist and pretty abstemious myself. So I'm not quite sure who that reference was directed at.

I will say that the witnesses have been very kind in responding to a series of questions they were not invited to come here to testify about. What we're looking at is the oil industry's awareness and knowledge of the impact of their business on climate change, and what they did and what they didn't do historically, and how that informs what we're going to do going forward.

So this has nothing to do with nuclear power. I'm sorry that some of the witnesses apparently disappointed you in taking a position for nuclear power. There was no litmus test on nuclear power

or any other issue. We have brought in the people who we found most expert on the question before us.

All right. With that, I'm going to call on Ms. Wasserman Schultz, who's recognized for her five minutes of questioning.

Ms. WASSERMAN SCHULTZ. Thank you so much, Mr. Chairman.

As my colleagues I know mentioned, ExxonMobil has a long, treacherous history of hiding what it knew about climate science. But there is no question that multinational mega-corporation has gotten more slippery with regards to its stance and actions on climate change. The company now claims to support the Paris agreement even as Trump is trying to pull us out of it.

You'll see on the slide here, in a January 2018 blog post, Exxon public affair's director explained, quote, "We believe the risk of climate change is real and we are committed to being part of the solution." However, ExxonMobil's corporate website recently stated, and I quote, "Current scientific understanding provides limited guidance on the likelihood, magnitude, or timeframe."

This seems like a double-down on their old-fashioned playbook of denial and obfuscation to me.

So Dr. Hoffert, do you agree with ExxonMobil's statement highlighted on the screen, the one that I just read, where they say that—

Mr. HOFFERT. Please read it.

Ms. WASSERMAN SCHULTZ. "Current scientific understanding provides limited guidance on the likelihood, magnitude, or timeframe."

Mr. HOFFERT. Could you please say when that statement was made?

Mr. RASKIN. 2018.

Ms. WASSERMAN SCHULTZ. Last year.

Mr. HOFFERT. Okay. Of course, that's absolutely incorrect. As far as something like 90—over 95 percent— of scientists who publish in peer-reviewed journals—and that's very important to us because it means it's been vetted and critically reviewed—agree that humans are having an effect, a noticeable effect on climate.

And it's more quantitative than that. As I mentioned before, we call this era, the era of the Anthropocene, meaning that humans are now the dominant effect on the environment of the Earth, for better or worse.

Of course, the evidence—and I've been working on this for 30 years—has increasingly shown that the prediction of climate change from CO2 emissions, mainly from fossil fuels, has increased—has eventually caused climate change.

Starting from back in the 1980's, when the Earth was actually cooling, I remember I was working at the Goddard Institute for Space Studies, we made an estimate that the climate change would start—

Ms. WASSERMAN SCHULTZ. My time is shrinking.

Mr. HOFFERT. Sorry about that. It's an interesting story.

Ms. WASSERMAN SCHULTZ. It is, I'm confident. And you're a former Exxon consultant, correct?

Mr. HOFFERT. I'm a former Exxon consultant, yes.

Ms. WASSERMAN SCHULTZ. Okay. Thank you so much.

Dr. Garvey, how would you respond to the claim that science provides limited guidance about the risks posed by climate change?

Mr. GARVEY. Let me just start by saying that I've not studied climate change for the last 30 years. I was a researcher at Exxon for 5. But I would say that there's a lot of information in the literature that provides strong and clear guidance as to what the planet is likely to be subject to.

Ms. WASSERMAN SCHULTZ. And do you believe that ExxonMobil is committed to being part of the solution?

Mr. GARVEY. I don't feel comfortable commenting on that. I really don't know.

Ms. WASSERMAN SCHULTZ. You don't know. Okay.

Dr. Oreskes, what do you think ExxonMobil is doing—is trying to do here with scientifically inaccurate statements like this?

Ms. ORESKES. I think they're trying to do the same thing that we know they've done for 30 years, which is to confuse people, to make people think that the issue is not sufficiently certain as to provide a basis for moving forward.

And if I could just answer the question you put to Mr. Garvey.

Ms. WASSERMAN SCHULTZ. Yes.

Ms. ORESKES. We know that ExxonMobil is not really committed to action on climate change because of their expiration profile.

I'm a geologist by training. I started my career as an expiration geologist. When you explore for new oil and gas reserves, you are committing to developing and using those reserves 20, 30, 40, 50, even 100 years into the future, and that belies their claim to be committed to this issue.

Ms. WASSERMAN SCHULTZ. Yes. And when they bury a statement that clearly is the opposite of what their public affairs director said, that they are essentially trying to speak out of both sides of their proverbial mouth.

Ms. ORESKES. Exactly.

Ms. WASSERMAN SCHULTZ. Dr. Ali, how would you describe the seriousness with which the company has responded to warnings that climate change will have disproportionate impacts on communities of color?

Mr. ALI. I don't think they're serious at all.

Ms. WASSERMAN SCHULTZ. What gives you that feeling?

Mr. ALI. Because they know, one, the impacts that they've had for decades now on our most vulnerable communities. They know also that they are going to drive more storms, more significant climatic events that are going to disproportionately hurt those communities. So I say that I don't think they're that serious about the concerns of our most vulnerable—

Ms. WASSERMAN SCHULTZ. Have you noticed that they've taken any significant steps toward addressing the impact of climate change and their effect on climate change in communities of color?

Mr. ALI. I think the best way to answer that is that I've worked in over 500 communities, I have constant conversations with the leaders in those communities, and it's never once been relayed to me that they feel that they are doing anything of significance to better protect their lives.

Ms. WASSERMAN SCHULTZ. Thank you.

I yield back the balance of my time.

Mr. RASKIN. Thank you very much.

And I believe you—

Mr. ROY. If I just might have 10 seconds. I need to correct the record, because I think I misspoke and said that grandfather-in-law's name was Alan Key, and it's Alan Reed. That was my mother-in-law's married name, and I think I misspoke. So I need to make sure that record gets corrected.

Mr. RASKIN. Okay. In the interest of domestic harmony, without objection, we will allow that.

And now we go to the gentlelady from New York, Ms. Ocasio-Cortez, for her five minutes of questioning.

Ms. OCASIO-CORTEZ. Thank you, Mr. Chairman.

I would like to thank all of our witnesses for coming here today to testify on very important aspects of one of the most pressing issues of our time.

Dr. Garvey and Dr. Hoffert, is climate change real?

Mr. HOFFERT. Climate change has been taking place over all geologic history. Climate change from fossil fuels is not only real, but it is happening at much higher rates than we have recorded in the geologic record.

Ms. OCASIO-CORTEZ. Thank you, Mr. Hoffert. I'm sorry—

Mr. HOFFERT. So there is no doubt about that.

Ms. OCASIO-CORTEZ. Thank you, Mr. Hoffert. My apologies. I have to be expeditious with how I ask these questions.

Mr. HOFFERT. I understand.

Ms. OCASIO-CORTEZ. Dr. Garvey, would you agree?

Mr. GARVEY. Yes, I would.

Ms. OCASIO-CORTEZ. Are large corporations' use of fossil fuels one of the primary causes of climate change that we're seeing today?

Mr. HOFFERT. Yes, is the simple answer.

Mr. GARVEY. Same here, yes.

Ms. OCASIO-CORTEZ. And how long has there been roughly a scientific consensus surrounding those two facts?

Mr. HOFFERT. I would say roughly 20 years, and that consensus is of actively working scientists who publish in peer-reviewed journals.

Ms. OCASIO-CORTEZ. Thank you.

And we have documents going back decades showing specifically that ExxonMobil or Exxon knew about climate change. In 1977, Exxon scientist James Black told Exxon's top executives that, quote, "The most likely manner in which mankind is influencing the global climate is through carbon dioxide released from the burning of fossil fuels." This was in 1977.

This was followed by an internal memo in 1979 which stated that, quote, "The present trend of fossil fuel consumption will cause dramatic environmental effects before the year 2050."

Dr. Garvey, would you say that the folks you worked with at Exxon agreed with the consensus on climate change?

Mr. GARVEY. Wholeheartedly.

Ms. OCASIO-CORTEZ. Dr. Hoffert?

Mr. HOFFERT. I can testify to after 1981, because I was working at Exxon with a group that was doing the calculations, and, of course, we did know that.

Ms. OCASIO-CORTEZ. Understood.

Dr. Hoffert, your work with Exxon was focused on the carbon cycle and climate modeling. I have a slide up here. Are you familiar with this graph from 1982?

Mr. HOFFERT. I believe I am. Yes. That is a calculation. I'm not sure who specifically to attribute it to. It could have been done by either of the researchers I was working with.

Ms. OCASIO-CORTEZ. Can you briefly explain what it shows?

Mr. HOFFERT. Sure. What it shows is a projection into the future of carbon dioxide levels and climate change associated with those carbon dioxide levels coming from fossil fuels. I don't have time for a detailed explanation, but that's it.

Ms. OCASIO-CORTEZ. Right, but briefly.

Mr. HOFFERT. And it's a very accurate representation of what today's climate change actually is.

Ms. OCASIO-CORTEZ. So this was a model from 1982—

Mr. HOFFERT. Right.

Ms. OCASIO-CORTEZ.—with startlingly accurate projections into the present.

Mr. HOFFERT. That is correct.

Ms. OCASIO-CORTEZ. The orange line shows the actual level of carbon dioxide in the atmosphere through this year, and the blue line shows the actual average temperature change.

So in 1982, Exxon accurately—1982, seven years before I was even born—Exxon accurately predicted that by this year, 2019, the Earth would hit a carbon dioxide concentration of 415 parts per million and a temperature increase of one degree Celsius.

Dr. Hoffert, is that correct?

Mr. HOFFERT. We were excellent scientists.

Ms. OCASIO-CORTEZ. Yes, you were. Yes, you were.

So they knew. They knew. And I presume they knew what some of the consequences of that one degree Celsius change would be, some of them, not all.

Mr. HOFFERT. Absolutely. I would like to have an opportunity to discuss that if someone asks me.

Ms. OCASIO-CORTEZ. Dr. Hoffert, you have previously said that Exxon's historic denial was immoral and greatly set back efforts to address climate change. That's correct, yes?

Mr. HOFFERT. That is correct that I said that. I have good reason to say it.

Ms. OCASIO-CORTEZ. And in 1998, API's global science communications team action plan, which involved Exxon, Chevron, Southern Company, and more, laid out the industry's denial campaign. They knew that they were going to dump unknown at that time amounts of money, but a large investment in a climate denial and doubt campaign in the United States and around the world, correct?

Mr. HOFFERT. To the best of my knowledge, that's true. But I didn't know of that personally.

Ms. OCASIO-CORTEZ. They said victory would be achieved when, quote, "average citizens," quote/unquote, understand uncertainties in climate science.

Dr. Garvey, would you say these goals accurately represent the mission of Exxon in the past and today?

Mr. GARVEY. Not in the past. Certainly not when I was there.

Ms. OCASIO-CORTEZ. Would you say that currently the current environment that is fostered around doubt on scientific consensus could be a result of lobbying from the fossil fuel industry?

Mr. GARVEY. I would say so, but I should let my cohort—you should answer that.

Ms. OCASIO-CORTEZ. Sure. Dr. Oreskes?

Ms. ORESKES. Three hundred and 50 pages on that in my book “Merchants of Doubt.”

Ms. OCASIO-CORTEZ. Thank you very much.

Mr. RASKIN. All right. Thank you very much, Ms. Ocasio-Cortez. I think what we’ll do, because we’re really getting somewhere here, is take another round of questions if everybody would be up for it.

I’d like to pick up where Ms. Ocasio-Cortez left off, with the 1998 “Victory” memo published by the American Petroleum Institute, and if we can put that up on the screen.

Ms. EUBANKS, let me come to you. You were the prosecutor at the Department of Justice who led the racketeering case against big tobacco. Is that right?

Ms. EUBANKS. That’s right.

Mr. RASKIN. Okay. Does this situation remind you of the tobacco case? As I understand it, the tobacco companies were perfectly well aware of the connection between smoking and cancer, but they did everything in their power to obfuscate the connection and to confuse the public, and that caused, of course, a lot of unnecessary deaths from cancer.

Are we in a similar posture with respect to the oil industry’s suppression of the truth about climate change and the confusion of the public?

Ms. EUBANKS. Yes, it’s very similar. In fact, what the government did in regards to the tobacco industry is it filed a racketeering case based upon the misrepresentations that were made.

And they’re very similar when you look at what the oil companies did here, is they denied that there was a consensus and at the same time their internal documents show that they knew that there was a consensus.

Mr. RASKIN. But on their behalf, I mean, all they were really saying was there’s uncertainty. Everything about life is uncertain and scientists are paid to ask questions. What was really wrong with them saying, “We don’t know, it’s not sure, it’s uncertain”? Could the suggestion of uncertainty actually constitute actionable fraud against the public?

Ms. EUBANKS. Well, it really wasn’t just uncertainty, it was—you can tell from the internal documents that they were certain. So they were misrepresenting factually what the knowledge was at the time and, therefore, delayed any action that could have gotten us to solutions much quicker.

Mr. RASKIN. So the representation of uncertainty in the scientific field when, in fact, there is a certainty of scientific consensus is itself actionable fraud?

Ms. EUBANKS. Yes, it is, and it was in the RICO case in tobacco. And there was an enterprise, a group of organizations, just like we see in the “Victory” memo, who got together to do this, to work and coordinate their activities. And the United States prevailed in that

case, in the tobacco litigation, and many people at the time said that that was an improper use of RICO. It was sustained all the way up the appeal channel.

Mr. RASKIN. Okay. Dr. Oreskes, you seem to have studied the history of this. Was there a moment when ExxonMobil or Shell or any of the oil companies were tempted to act as first responders, to blow the whistle and to say—to try to get government to address the emergency of climate change with the requisite seriousness? Or was it always clear to them that they just wanted to keep a good thing going with the amount of profit that was being won from the fossil fuel industry?

Ms. ORESKES. Well, I think that would be a very good thing to investigate.

One of the things we don't know exactly is how the shift occurred from the good ExxonMobil that we heard about, that was doing high-quality science, publishing in peer-reviewed journals, to this period sometime after the late 1980's or 1990's when ExxonMobil and other fossil fuel companies became involved in this organized effort to sow doubt.

Mr. RASKIN. Yes.

Dr. Ali, I read an interesting book by Jared Diamond called "Collapse" in which he talks about how civilizations collapse. And one of the key signs he invokes is when the governmental process is captured by specific subgroups, small special interest groups, to the exclusion of the interests of the many.

Do you think we are in a situation where our energy policy, our environmental policy, our public policy has been dictated by a small subgroup of the society, and what we're trying to do now, at least what some people are trying to do, is to struggle for a broader representation in terms of government policy?

Mr. ALI. Yes. The vast majority of citizens in our country know that climate change is real and they want real action on it. But we have, in my work at the Environmental Protection Agency and in other jobs that I've had, I've seen that there is that small group that have had huge influence in our policy. And I see that influence also shown here on Capitol Hill.

Mr. RASKIN. Are there any other countries on Earth where the scientific consensus on climate change is being doubted and interrogated by paid climate skeptics? Are there entire industries in the U.K. or Germany or France or Canada or Mexico where people's job is to go out and to try to cast doubt on the scientific consensus?

Mr. ALI. We see it here in the United States, and probably the only other place is Russia.

Mr. RASKIN. Okay. And is anyone else on the panel aware that there are climate skeptic industries in other countries?

Yes, Dr. Oreskes.

Ms. ORESKES. Yes. One of the things we showed in our work is that this began in the United States, it was largely funded by American industries. But it has spread. We now do see paid climate denial in Australia, a little bit in Canada, and a little bit in the United Kingdom. But those are the only places, and we can show that it came from the United States.

Mr. RASKIN. Okay. My time is up.

And, Mr. Roy, you're recognized—or, Mr. Massie, you're recognized for five minutes.

Mr. MASSIE. Ms. Gunasekara, can you speak about the impacts of the Green New Deal, the proposed Green New Deal generally and then more specifically on low-income communities?

Ms. GUNASEKARA. Yes, absolutely. Before I get to that, though, I want to go back to something one of the panelists said about one of the groups of scientists that I work with on the CO2 Coalition.

I think it's important to understand that asking questions in the context of science is not denialism. The very essence of better scientific understanding is by asking tough questions and challenging the status quo.

The scientists I know that work at the agency today, at EPA, that I've worked with internationally, and that I have worked here in Washington, DC, and across the entire United States, they ascribe to that.

And what's different in the context of climate change science compared to other areas of science that I work closely on, including air quality assessments, is that anyone who speaks up and mentions some measure of uncertainty, they get attacked. So much to the point, one of the scientists I work with that's affiliated with the CO2 Coalition, his office on the University of Alabama's campus got shot up.

And there is a massive backlash for any scientist willing to ask tough questions and have some measure of reason and balance as they are assessing these very complex and sophisticated issues.

And I think complex and sophisticated is a better accounting of the current state of the climate science discussion that is ongoing in a number of different applications, including the relative sensitivity of the planet to a mild and manageably warming climate that we have seen and many have been talking about openly.

So back to your original question, the problem with the Green New Deal is it's completely unrealistic. It would force an unnatural shift to renewable energy sources, which we talked about earlier, would lead to an exponential increase in the price of electricity. There are significant economic consequences to that.

There are also significant problems in the fact that the technology that would be required to maintain access to reliable source of energy in a system that is overly reliant on solar and wind requires technology that just doesn't exist. It requires battery-type technology that, I was looking at statistics the other day, if all of the energy that's represented by existing battery power was charged in full, it could provide New York City with one hour of electricity and that's it.

Not to say we shouldn't continue to seek out research and improve those technologies, which will no doubt continue, but just to say that we should force an unnatural shift to sources that were never designed to provide base load energy, which is the most important when it comes to providing affordable, reliable electricity, you're going to have a host of negative consequences.

And for the communities, minority communities and low-and income-fixed communities, we talked about that, too. They spend a disproportionately higher amount of their take-home income on energy already. And if you increase that price, what they do is they

make cuts elsewhere, including reducing trips to the doctor, foregoing meals, and foregoing other important healthcare initiatives.

So it also has the ability to undercut future employment opportunities, and you're going to make the price of electricity go up, and you're also going to take away their ability to pay for it through a job.

So it's extremely problematic, totally unrealistic, and fails to recognize the fact that the United States, we already lead the world in terms of emissions reductions. There's a very good news story. And it doesn't require restructuring the entire economy so that it's more aligned with socialism than it is with the democracy that's produced the innovation and the positive environmental impacts we're experiencing today.

Mr. MASSIE. So one of the problems with low-income communities—and, by the way, this is Appalachia, where I live as well—is transportation to work. Would the Green New Deal increase the price of transportation and make it harder for people who are trapped in these communities to get to work?

Ms. GUNASEKARA. Yes, I believe some of—a lot of the details around the Green New Deal and how it would ultimately be implemented are missing, but an underlying element of it is to shift vehicles away from internal combustion engine, fossil-fueled vehicles, into electric vehicles.

And today there's been, after decades of subsidies and whatnot, electric vehicles represent about three percent of total cars in use today.

So there's a significant problem in terms of having the infrastructure to make it to where people could reliably get to work. And also the costs of the technology are much more expensive, which is why you see only a few are able to afford things like the Tesla and things along those lines.

The other thing it ignores, too, is in the context of electric vehicles there's a lot of minerals in those, in the batteries, that if you were to suddenly shift and force large swaths of the population to drive them, there's major mining implications for that and exacerbation, something I've looked closely at, of child labor practices in Africa, where cobalt, which is a huge portion of these batteries, actually comes from.

Mr. RASKIN. Okay. The gentleman's time has expired.

Mr. MASSIE. But for the record, I'm not against solar, I'm not against electric cars. I drive an electric car and my house is 100 percent solar. But I estimate I pay about twice the cost for transportation and electricity. So this is not a burden that we should put on low-income communities.

Thank you, Mr. Chairman.

Mr. RASKIN. And thank you for your comments, and thanks for not exacerbating the mild and manageably warming climate that we're experiencing today.

I will come now to Ms. Ocasio-Cortez for your final five minutes of questioning.

Ms. OCASIO-CORTEZ. Thank you very much, Mr. Chair.

Ms. Gunasekara, you're here advocating—I mentioned—I heard you mention the CO2 Coalition a few times. You believe they should have a credible seat at the table in climate policy, correct?

Ms. GUNASEKARA. Yes. I believe all scientists should have a credible seat at the table.

Ms. OCASIO-CORTEZ. So the CO2 coalition, are you aware that they are primarily funded by the Mercer family and the Koch brothers?

Ms. GUNASEKARA. So I'm not familiar with the makings of the institution. I just recently came on board as an adviser that works with them, but I'm not a part of the infrastructure, so to speak.

Ms. OCASIO-CORTEZ. I understand. So you may be unwitting to the fact that this coalition that you're a part of is funded by the Mercer family and the Koch brothers.

Are you aware that the Koch brothers own oil refineries across several states in the United States and control some 4,000 miles of gas pipeline and infrastructure?

Ms. GUNASEKARA. Yes.

Ms. OCASIO-CORTEZ. Do you think that there may be any role in their financing with the CO2 Coalition with the advancement of their private interests?

Ms. GUNASEKARA. Again, I don't know about the financing with regard to the CO2 Coalition.

I'll say my engagement with them, though, is not unwitting, it is active and inspired and educated, because a lot of these folks are scientists that have long been diminished and ignored. And the CO2 Coalition has—

Ms. OCASIO-CORTEZ. So you knowingly work for the Koch brothers.

Ms. GUNASEKARA. And the CO2 Coalition has—

Ms. OCASIO-CORTEZ. Reclaiming my time. So you knowingly—

Ms. GUNASEKARA [continuing]. has provided a platform for them to provide reality and balance in the context of the climate discussion.

Ms. OCASIO-CORTEZ. Understood. Thank you for your testimony that you are not unwittingly working for the Koch brothers.

Dr. Ali, we don't often think about climate change as a civil rights issue, but global warming is already wreaking havoc and displacing populations across the country and around the world.

I've seen your work in climate justice and environmental justice. Can you talk to me a little bit about the consequences for communities of color on not acting on climate change?

Mr. ALI. Well, if we don't act, then we are going to lose more lives. We are going to lose more African American lives, more Latinx lives, more Asian-Pacific Islander lives, more indigenous lives. We're going to lose more lives of White low-income brothers and sisters as well, because all of them are the ones who are placed right on the front lines of many of these things that are going on.

When you look at all of these places where the flooding is going on, you find that there are poor people who are there. You find that there are communities of colors who are the ones who, after they are hit, they can't come back home.

If you look in the Little Pee Dee area in South Carolina, the Little Pee Dee River, folks who are hit by the floods that came through there now have the burden of having to raise their homes to be able to get insurance and to be able to come back home. And

if they lose their homes, they lose that generational wealth. And we see these things playing out all across the country.

Ms. OCASIO-CORTEZ. Do you recall roughly how many people died in Hurricane Katrina?

Mr. ALI. Three thousand-plus.

Ms. OCASIO-CORTEZ. Three thousand. Do you recall how many died in Hurricane Maria?

Mr. ALI. Over 3,000.

Ms. OCASIO-CORTEZ. Yes. So it's around 3,000 as well. So we're talking about 6,000 predominantly Black and brown lives that are wiped out.

In terms of the science and the modeling, do we see largely that it's the global south and communities of color that may be bearing the brunt of the initial havoc from climate change?

Mr. ALI. Without a doubt. Without a doubt. And least likely to be able to escape or to make the transitions that others who maybe have more wealth can do.

Ms. OCASIO-CORTEZ. And terms of that wealth, the people who are producing climate change, the folks that are responsible for the largest amount of emissions, or communities or corporations, they tend to be predominantly White, correct?

Mr. ALI. Yes, and every study backs that up.

Ms. OCASIO-CORTEZ. And so I think it's important that we put into context here there's a difference between an electricity bill and people's lives. You know, my own grandfather died in the aftermath of Hurricane Maria. And we can't act as though the inertia and history of colonization doesn't play a role in this, that we didn't treat their lives equally, as if a different community were hit.

Can you speak a little bit more to some of the specific communities that you've encountered in your work and the climate injustices that you've witnessed?

Mr. ALI. Every place from Alaska, with the Gwich'in people, and a number of others who are losing their culture. They can no longer fish and hunt in the places because of the changes that are happening.

Along the Gulf Coast, when you go to Cancer Alley and you see between New Orleans and Baton Rouge, you know, African American communities, other low-income communities who moved there after slavery was there, then all of these petrochemical facilities, literally as far as you can see, chemical plants, petrochemical plants, all these different things, and the folks can't escape because their housing values have now decreased so much that they can't move anywhere else.

You can literally go across our country and see these impacts that are happening, and that's the most frustrating thing about these conversations, is that we never talk about people's lives. We don't talk about people's lives in Appalachia in a serious way, about the public health impacts that are happening to them. We don't talk about the people in the Rust Belt and the public health impacts that are happening and how their lives are being cut short also.

We don't have a serious conversation—and I appreciated what the Congressman shared about, that he had a business that's there, an industry that's in his community. In Appalachia, in West Vir-

ginia, where I lived, we knew for decades that the coal industry was constricting and was going to eventually die out. And politicians were not thinking critically about what are the new industries that we should be getting in there.

So when we talk about wind and solar and thermal and all these other opportunities, we do a disservice to our most vulnerable communities when we don't provide these new sets of opportunities for them. And when we don't, and when we prop up and support this fossil fuel industry that is impacting their lives, then we have some culpability in that.

And I know no one is intentionally trying to kill people and hurt people. This issue of the environment has become one that has become politicized, and it shouldn't be. The environment should never be politicized.

And we do not have to choose between the environment and jobs. That is a 20th century paradigm that no longer can be in place, because the IPCC report, the National Climate Assessment report, they are very clear. These scientists are not biased. They are telling us what's about to happen.

And if we are not willing to do what's right, then we are responsible for our children's lives and our children's children's lives who are going to have to deal with these impacts.

Mr. RASKIN. All right. The gentlelady's time has expired. Thank you for that answer.

And we go finally to the Ranking Member, Mr. Roy, for his final five-minute questioning.

Mr. ROY. I thank the chairman.

I thank my colleagues, Ms. Ocasio-Cortez. And thanks for us having additional time.

Ms. Gunasekara, let me ask you a question. Do you know what the most deadly hurricane has been in North American history to the best of or at least of our knowledge?

Ms. GUNASEKARA. I think it was over 100 years ago.

Mr. ROY. Yes. It was in Galveston, Texas. We know well the damage there.

Do you know what the impact was to minority communities there.

Ms. GUNASEKARA. I don't know specifically.

Mr. ROY. Yes, I don't know either, because I don't know what the racial makeup was in 1900. What I know is, is that Galveston got crushed and 6,000 to 12,000 people died in 1900.

Let me ask you this question. We've heard a lot about, again here, the impact on lives, on those who are—whether they're minority communities or poor, those that we're talking about in kind of the context of the Civil Rights and Civil Liberties Subcommittee here.

And my colleague here has raised this question, and I've raised this question, but I wanted you to explore it a little bit more, about the direct impact on the lives of the disadvantaged in the United States of America and/or around the world if we are to pursue an agenda of ending, for example, fracking, as at least one leading Democratic Presidential candidate has suggested.

Ms. GUNASEKARA. Well, you'd not only put billions—sorry—millions—up to millions—a couple hundred thousand and up to a mil-

lion people out of work in this country alone, you'd be ascribing the families and the communities that depend on them as a source of income to a life of potential poverty.

Around the world the implications are even graver. Fossil-based energy enables the modern economy, and with the modern economy you have access to life-saving healthcare, refrigeration for food, all sorts of technologies that are built on fossil-based energy systems.

And you can change people's lives. There are a billion people today that don't have access to electricity, and if we were to give them a reliable source of electricity through the most efficient technologies that we use here today, with some of these countries overseas, you'd not only be lifting up the standard of living in areas where they're living in extreme poverty, but you'd also be extending their life expectancy, and they'd be enjoying the benefits of a modern economy that we, frankly, take for granted in this country.

Mr. ROY. Can I ask you a question? Do you oppose solar power?

Ms. GUNASEKARA. No, not at all.

Mr. Roy Wind power?

Ms. GUNASEKARA. No.

Mr. ROY. Which state is one of the leading states in solar power—or wind power, I'm sorry, as a percentage of its grid?

Ms. GUNASEKARA. I believe you said earlier it was Texas. I was listening.

Mr. ROY. Texas is, if not the leading, one of the leading sources, you know, of use of solar power—I'm sorry, wind power—to produce energy for its grid.

This summer, however, because we have been taking down some of the base load coal-fired plants, we've had some situations where we were concerned about bumping up against and having to potentially have rolling blackouts. Why? Because we have difficulty in getting some of that wind power to places distributed around the state and to be able to rely on it as a core element of our grid, empowering our grid.

And I earlier referenced the 84 percent of our overall power that comes—64 percent for fossil fuels, 20 percent from nuclear. And my question for you is, when we look backward here, as this hearing is supposed to be doing with respect to certain companies about our use of fossil fuels, what would have been possible in 1980 or 2000 at some point in terms of powering our grid in the United States of America, for the lifeblood of people's lives, with solar and/or wind power?

Ms. GUNASEKARA. You certainly would not have seen the economic growth we've seen today with the continued use of coal-fired power plants and the exponential growth that has occurred alongside of the natural gas boom. You certainly wouldn't see the historic economic growth we've seen today under President Trump, where we have 6 million new jobs, the lowest unemployment rates across the board when it comes to women, minorities, and other previously disadvantaged communities that were held captive in poverty.

Mr. ROY. And if I might add, the robust economic growth that has been led by the state of Texas, significantly, and that is in significant part because of natural gas and the ability to export liquefied natural gas. And how important is the exportation of liquefied

natural gas to those countries around the world for those people who are predominantly concerned about CO2?

Ms. GUNASEKARA. It's significantly important from geopolitical stability, No. 1, and No. 2, there are significant environmental benefits. There's a recent report from the National Energy Technology Lab, that did an assessment of lifecycle emissions affiliated with U.S. LNG sent to European and Asian markets compared to gas from Russia, and U.S. LNG shipped to European markets has 41 percent less emissions, lifecycle emissions, than if those same countries were to receive natural gas from another predominant producer like Russia.

So significant implications in terms of reducing overall emissions but providing energy to the allies who need it abroad to, again, enable the modern economies that make life so much better.

Mr. ROY. Thank you, ma'am.

Mr. RASKIN. All right. And thank you, Mr. Roy.

Before I close, for the record I want to introduce four Exxon internal memoranda, dated June 6, 1978, October 16, 1979, August 3, 1998, and October 13, 1997, as well as the April 3, 1998, American Petroleum Institute Action Plan. Without objection, those will be admitted into the record.

Mr. RASKIN. I want to thank all of our witnesses for really a remarkable presentation. It was edifying and educational for us. There are a number of other things going on, on Capitol Hill today which our subject is connected to in complicated ways. But nothing was done of more importance today than what you all have done, and future generations will thank all of you for participating in this hearing.

And I want to thank Mr. Roy, Mr. Massie, Ms. Ocasio-Cortez, my colleagues, for coming and being here, and we will continue to investigate.

Without objection, all members will have five legislative days within which to submit additional written questions for the witnesses to the chair, which will be forwarded to each of you for responses. I ask all of our witnesses to please respond as promptly as you can to those.

And with that, the hearing is adjourned.

Mr. ROY. Thank you, Mr. Chairman.

[Whereupon, at 12:23 p.m., the subcommittee was adjourned.]

