

THE RACE FOR WHAT'S LEFT: *The Global Scramble for the World's Last Resources*

Featuring **MICHAEL KLARE**

KLARE: Welcome everyone. I'm going to speak tonight about the major themes of my book, which is the depletion or disappearance of the world's vital resources – the resources we depend upon to support our modern industrial civilization. About the scramble to procure, to secure, what's left in the world of those resources, and the human and environmental consequences of that scramble. And I will conclude by talking about what we might do about this global scramble for the world's last resources, that's the overall theme of my talk. But I want to try to demonstrate that all of these themes are part of a larger picture that is engulfing the world at this time. That the depletion of easy resources – “the race for what's left” – are part of a bigger picture, which in turn is responsible for a lot of what we are seeing in the world today.

Of course you all know that it's hot. This is one of the hottest years on record and one of the driest years on record, much of this country has been declared a disaster area because of heat and drought. At the same time we are seeing serious clashes, naval clashes, in the South China Sea. We see talk of a possible war with Iran over closure of the Strait of Hormuz. The oil spills in the Gulf of Mexico and elsewhere. Debates over the Keystone XL Pipeline, and debates over hydrofracking. Rising food prices. All of this, I think, is connected to a larger picture and I want to put what I am going to speak about in this larger context. Basically what I think is that we're entering a new world, and that is what I want to talk about. We are moving from one planet to another. We are moving from a planet of easy living, of easy resources and easy climate, to a world of harsh survival where our basic needs will only be provided at great cost and at great risk. To a great degree, I've been influenced by my friend and somebody I admire a great deal, Bill McKibben. He's written a book called “*Eaarth*” with two a's. He says we have to spell the planet ‘Earth’ differently because it's changing so rapidly. He speaks, of course, about the impact of climate change. But I speak about the other side of the equation. Climate change is a product of what we do to the Earth when we consume things and we pour our wastes into the atmosphere, into the soil, into the water, and so on. What my book, “*The Race for What's Left*”, is about is the extraction and consumption of resources – but the two I think are part of a whole.

Text on Screen: “The end of easy EVERYTHING.”

I describe this transformation as the end of easy everything. And let me say that I acquired this term from the oil industry. The oil industry talks about “easy oil,” that’s an oil industry term, and they talk about the end of easy oil. So what do they mean by “easy oil”? “Easy oil” is oil that’s close to the surface, you know you can drill right down and it comes out. It’s on land or very close to shore. It’s in large reservoirs, so when you drill down you get a lot at once. It’s easy to refine, it’s not full of all kinds of impurities. And it’s located in friendly countries. Countries that are safe, that respect the rule of law, and therefore you can repatriate your profits very easily. That’s “easy oil.” You could also speak about ‘easy coal,’ or ‘easy natural gas,’ or ‘easy copper,’ or ‘easy everything.’ Materials that are easy to extract and to process, and so on.

Text on Screen: “EASY oil: Close to the surface. On land or close to shore. In large reservoirs. Easy to refine. Located in friendly countries.”

But let’s start with oil. The earliest oil fields all met this criteria of easy oil. Rockefeller for example, who created Standard Oil – America’s greatest, most powerful corporation – built his empire with oil that was acquired first in Pennsylvania, in Ohio, and Indiana. Other big companies got their start in Texas and Oklahoma, Louisiana and California. Until 1950, most of the world’s oil came from places that satisfied these criteria of easy oil, and we live in a world today that was created by easy oil. American civilization as we know it – a civilization of mass automobile ownership, of interstate highways, of suburban sprawl everywhere, of malls, of people flying all the time – all of this is made possible by the discovery and production of easy oil.

Everything that we know of as the American way of life was made possible by easy oil. The global abundance of oil also made possible the emergence of the United States as the world’s first and only true super power. To deploy armies on every continent, ships on every ocean, to have alliances all over the world – you have to have abundant, cheap oil. That’s what made the United States, and makes possible the continuation of the United States, as a global super power. You couldn’t sustain large armies in far away places like Afghanistan, Iraq, Korea, and Vietnam, and so on without large amounts of oil. And to preserve this flow of oil, the United States had to maintain large military forces in the Persian Gulf and elsewhere, to fight wars repeatedly in the Middle East, and had to maintain a whole foreign policy around the preservation of access to oil.

We should understand that the availability of easy oil also made possible the expansion of global food production over the past 50 years, something that we don’t really appreciate adequately. When I was born in 1942, there were about 2 billion people, maybe a bit more, on the planet and mostly the food was produced with rainfall and horsepower and oxen, and the like. Since then the expansion of global food production has been made possible largely with the mechanization of agriculture, with tractors, with drilling deep into the Earth to pump up water from underground aquifers, with chemical pesticides and herbicides, and artificial

fertilizers – all of this was made possible with easy oil. And without it we wouldn't have the population today of 7 billion people. There is no way that would be possible.

Graphic on Screen: Rise of Population

So it's only through easy oil that we could sustain the world's population and without oil it's unclear, totally unclear, that we can maintain the world's population at this level – let alone the projected increase to 9 billion people. Now I can go on, but I think you get my drift. The world we inhabit, the world of mass automobile transportation, plane rides everywhere, affordable food and energy, all of this depends on easy oil, easy coal, easy natural gas, easy minerals, easy food, easy climate, easy everything else, and that world is now coming to an end. The end – we are seeing the end of easy oil, and all of these other things. And that means that the way of life we've come to rely on is going to become increasingly costly, hazardous, and expensive and risky. Now, as I said, I acquired this concept of easy oil from the oil industry. I first came across this term in 2005 in an advertisement, in which the CEO and chairman of Chevron, Dave O'Reilly, planted an open letter in the paper, and this is what he said. He said, "Energy will be one of the defining issues of this century. One thing is clear: the era of easy oil is over".

Text on Screen: "Energy will be one of the defining issues of this century. One thing is clear: the era of easy oil is over." –David J. O'Reilly. Chairman & CEO, Chevron Corporation.

Now you have to take this in context. You have to see the context of this. Coming from the chief executive of a major American oil company, this is heresy. This is blasphemy. Ever since the beginning of the oil age, certainly since World War II, the oil companies have been telling us that they are capable of providing our needs endlessly, infinitely. That all we have to do is get government out of the way, eliminate all the restrictions, the environmental restrictions and regulations, push government out of the way, and they will be able to satisfy a rising thirst for energy indefinitely. So here, we are having for the first time, somebody – a leader of a major company, the second biggest oil company in the United States, Chevron – giving us a completely different message. "The era of easy oil is over." And then what did he say next? He said, "Demand is soaring like never before. As populations grow and economies take off in the developing world, millions in the developing world are enjoying the benefits of a lifestyle that requires increasing amounts of energy. At the same time, many of the world's oil and gas fields are maturing." Now if you understand the context, this is even more blasphemous for an oil company executive.

Text on Screen: "Demand is soaring like never before. As populations grow and economies take off in the developing world, millions in the developing world are enjoying the benefits of a lifestyle that requires increasing amounts of energy. At the

same time, many of the world's oil and gas fields are maturing." –David J. O'Reilly. Chairman & CEO, Chevron Corporation.

They don't like to talk about their greatest nightmare. Their great nightmare is the depletion – that's the worse word you could mention around oil company officials – is that the oil fields on which we rely for this civilization we've created are being depleted. But that's what he's saying. He uses a more polite term there, "maturing," a nice, polite word; but what he means is that the oil fields on which we rely are losing, are giving up, are being exhausted, are being depleted. The International Energy Agency – the IEA – claims that the major oil fields that are now pumping oil will lose 3 quarters of their output over the next 25 years. Three quarters of their outputs will vanish because of the high rate of depletion. Now what that means is the oil age, if nothing else happens, is over. Modern industrial civilization will collapse. That's the only possible interpretation of what they are saying.

Graphic on Screen: Oil Depletion

Now of course the oil industry and the natural gas industry, and so on, are doing everything possible to avoid this collapse by seeking new sources of oil. But this is where Dave O'Reilly of Chevron is especially revealing, and you could say the future of the world is captured in his next two sentences. He says, "New energy discoveries are mainly occurring in places where resources are difficult to extract. Physically, economically and even politically. And when growing demand meets tighter supplies the result is more competition for the same resources."

Text on Screen: "New energy discoveries are mainly occurring in places where resources are difficult to extract. Physically, economically and even politically. And when growing demand meets tighter supplies the result is more competition for the same resources." –David J. O'Reilly. Chairman & CEO, Chevron Corporation.

Now what does he mean when he says, "Resources are difficult to extract physically, economically, and even politically?" This, of course, is the essence of the transition I'm talking about, from an easy living planet to a harsh survival planet.

First of all, we are talking about extraction. We are talking about gouging the Earth or, if you want to put it differently, assaulting Mother Nature, gouging the earth and pulling out the stuff that we use. It could be oil, coal, natural gas, copper, iron, or diamonds, whatever. You are digging into the Earth and pulling something out. What he is saying is that extraction is becoming harder physically and economically. We have to go deeper offshore and go under larger amounts of water, or go to environmentally challenging locations like the Arctic and Siberia. It requires a lot of energy to do this, and that is more expensive. The cost of production is rising, and that means that the cost of energy is rising. And that has a spiral effect: to dig deeper you need more oil, and that means as the price of oil rises, the price of extracting more oil rises higher, do you follow? So the cost of energy is destined to keep rising and the cost of everything else will rise and become more difficult.

Graphic on Screen: Price of Energy & Price of Extraction Rise

Now notice that I'm not saying we're running out of things. This is not about scarcity per se; there is a lot more things left on the planet. But they're going to get a lot harder and more difficult to extract. For example, if we are talking about oil, now we have to distinguish between conventional oil and unconventional oil.

Conventional oil is the liquid stuff that, if you drill, Mother Nature has made very convenient for us. It comes pouring out of the earth as a liquid, comes shooting up – you don't have to do much work at all. That's the good stuff. That's mostly gone now. There's a lot of unconventional oil. This is solid rock, shale rock, or tar sands – that's thick, muck bitumen mixed with sand and mud and clay. It has to be gouged out of the Earth as if you were mining for it. Now there is a lot of this stuff left on the planet, but getting it out is not going to be easy. It's going to be exceedingly costly to do this. When you start looking at the environmental consequences of relying on this material, you start getting a sense of exactly what I mean by a new planet.

Take tar sands. To produce tar sands, you have to use a tremendous amount of energy. All forms of energy extraction produce carbon dioxide. But tar sands production, multiply that by ten. So, naturally the carbon dioxide emissions are much greater as a result. Canada, which was one of the earliest signatories to the Kyoto Protocol – which calls on countries to reduce their carbon dioxide emissions – last year, they had to pull out of the Kyoto Protocol because they are no longer capable of keeping their commitments, exclusively because tar sands are now the leading emitter of carbon dioxide and greenhouse gases in Canada. And they're so committed to producing these tar sands that they've given up their commitment to reducing greenhouse gases and protecting the planet from climate change. And the same thing is true of all of these tough oil, tough gas, tough coal processes – they all are more expensive; they are harder and they are more environmentally destructive.

They also require a lot of water. The water becomes contaminated with toxic substances and the water that's left over can't be put back into the river, the Athabasca River, because it would poison it with carcinogenic toxins. So they put it in giant lakes, which are the size of Manhattan, you can see them from space. And they build earthen dams and say they'll be safe. But the carcinogenic materials are leaking into the river and being carried downstream to Native American communities, where cancer rates are now spiraling upward. So the consequences of reliance on these tough oil and gas materials are bound to spiral upwards. But that's not to say they are scarce, there's plenty of them. So this is a matter of just how desperate we're going to be to extract and to process this material.

I've been speaking mainly about oil, but the same thing is true of everything in this tough resource, tough energy era. It's true of natural gas. The notion is that we have a vast abundance of natural gas in this country. You get the impression that all you have to do is drill down there, pour in a little water and out comes gushers of

natural gas. Well, nothing is further from the truth. There aren't pockets of natural gas, there are molecules of natural gas embedded in shale rock. The shale rock has to be smashed, fractured. Hydrofracking – the 'fracking' means fracturing.

Text on Screen: 5 million gallons of water are required for each fracking attempt.

You have to use millions of gallons of water laced with poisonous chemicals to smash open that shale rock and liberate the molecules of gas and, once you're done, you have millions of gallons of poisonous, carcinogenic water you have to dispose of somewhere. What are you going to do with it? Same thing, put it in pools of water with earthen dams and hope it doesn't leak into New York City's water supply, or Philadelphia's, or Baltimore's. That's the industry plan. Or coal – there is more coal left, buried in the Appalachian Mountains and all you have to do is blast off the top of the mountains and then gouge out, extract it out. So, there is resources adequate to meet our needs if we push government and citizens out of the way, and allow the industry to extract what's left. You get my drift. I could go on and talk about copper and everything else, but it's the same.

Remember that O'Reilly also spoke not only about physical and economic costs, but he also said that extraction was becoming more difficult politically. And what he means by that, I believe, is that most of the world's remaining oil and natural gas, and everything else that hasn't already been consumed, is located – if it's not located in the Arctic or in the deep oceans – it's located in countries that are at war, or recently at war. Or in places that are ruled by corrupt or authoritarian governments, or that are otherwise difficult to reach, difficult to extract for political reasons. For example the countries with the largest reserves of oil after Saudi Arabia are in sequence Iran, Iraq and Venezuela. None of them can be considered a source of easy oil from a political point of view.

Iran is ruled by an anti-western clerical regime and is being subjected, as you know, to harsh economic sanctions – they had just been tight-ratcheted up as we speak because of its uranium enrichment activities. Because of the sanctions, they are not producing at the level that they are theoretically capable of producing. They could probably produce two or three times as much oil, but they are not because of the sanctions. That's Iran. Iraq, its next-door neighbor, also is theoretically capable of producing far more oil than it is at present. But given the continued sectarian violence, the corruption, the authoritarianism, the lack of any rule of law in the country, I find it very hard to believe that Iraq will ever reach its theoretical capacity to increase production.

Venezuela now is said to have the world's second or third largest reserves of oil, if you count the extra heavy oil that I spoke about. But much of this heavy oil is very difficult to produce for all the reasons that I explained earlier. It can't be produced using conventional technology. As a result, Venezuela is seeing ever-diminishing production despite its great capacity. So these are just some examples of the difficulty of producing in the places that are left. Russia, Libya, Nigeria, Kazakhstan,

could all produce more oil than they are at present, but because of the combination of war, of corruption, of cronyism, of chaos, they do not.

So this is the picture, the political picture, that Dave O'Reilly is speaking about. He said, "When growing demand meets tighter supplies the result is more competition for the same resources." What does he mean by that? Well that's, of course, the subject of my new book, "The Race for What's Left." What we are going to see is intense competition among the major resource corporations and the major resource consuming countries to acquire control over whatever remains of the world's vital resources, and those few resource zones that haven't been fully exploited – the Arctic, Alaska, Siberia, the deep oceans, the inner most parts of Africa and Amazonia, and those few places that were spared exploitation because of war or isolation, like Mongolia and Afghanistan. All being invaded now by the major corporations. These places are all woefully unprepared for the assault that awaits them and that is occurring today.

From an environmental perspective, the consequences will be catastrophic because these are areas that are already at the margins of survival. The species that inhabit the Arctic, or Greenland, or Siberia are just surviving on the edge of existence. If you have an oil spill there, or a similar kind of disaster, your ability to survive disappears entirely and you'll have entire species destruction. There is a massive battle going on in Alaska this summer and you should be watching it between Green Peace and other environmental groups and the native communities there, to stop Royal Dutch Shell from beginning drilling off the coast of Alaska. Right now it's touch and go, but the native communities are terrified that one spill will kill off all of the animals and plants that they rely on for their survival.

There's also going to be social catastrophes occurring because these areas – Alaska, Siberia, Northern Canada, the Amazon and inner Africa – these are the last places in the world that still have indigenous peoples who practice life according to traditional ways. Maybe the people will survive, but their traditional societies will be destroyed. For example in Brazil, the Brazilian government is pushing ahead with a dam – you may have heard about this. The Belo Monte dam to flood the Xingu River – destroying, flooding hundreds and thousands of square miles, which will destroy the habitat, the area that is inhabited by native tribes that continue to live by their traditional ways. That lifestyle will be destroyed, they will have to move to the city where they'll become beggars and live on government handouts, but their way of life will perish. The article in the *New York Times* about Mongolia was equally tragic: It talks about all of the sheep herders who are being forced by drought, thanks to global warming, to move to the city, living in yurt slums surrounding Ulan Bator, the capital city, and looking for jobs in the mines, which is a new industry in Mongolia. This is what I'm talking about, is the social destruction that will come from all of this.

But my biggest fear arising from all of this is that this competition among the companies and governments to control what remains of all of these resources is that

the competition will turn violent. And I think that there's a lot of reason to expect that it will. The most conspicuous sign of this danger, I believe, can be seen in disputes over contested offshore resource zones like the East and South China Seas, the Arctic and the Falkland Islands area. All of these areas are believed to house substantial undersea reserves of oil and natural gas and, in some cases, valuable minerals. And they also lie in maritime areas that are contested; who owns these offshore areas is contested by two or more different countries. The East China Sea, which lies between China and Japan, is contested between the two of them, and there's a very large natural gas field that is claimed by both. The South China Sea, which has been in the news, lies between China to the north, the Philippines to the East, the Island of Borneo to the South and Vietnam to the West – and that has a whole bunch of oil and natural gas fields, which all of them claim parts of. China claims the whole area. The Arctic region is claimed in part by Russia, Canada, the United States, teeny Denmark – which has great imperial power. Denmark owns Greenland, which is an Arctic power, and Norway. And the Falklands, which is back in the news, is claimed by both Argentina, which calls it the Malvinas Islands, and the UK. In each case, all of the countries involved have submitted claims under the UN Convention on the Law of the Sea, saying that they control big chunks of these bodies of water and that gives them exclusive rights to develop the undersea oil and natural gas and minerals.

But all of these claims overlap each other and they refuse to agree to compromise on where the lines should lie, and to make matters worse they all intend to use military force to demonstrate their determination to hold on to their piece of this territory. In one such clash that occurred in April, ships from China and the Philippines squared off over an uninhabited island or islet called Scarborough Shoal in the Spratly Islands in the South China Sea, and they almost started shooting at each other. This is a very worrisome matter. Why? Because the Philippines has a mutual defense treaty with the United States. If the Philippines came under attack by China, the United States has a treaty obligation to come to its assistance. So you very quickly could have a U.S.-Chinese shooting war occurring in the South China Sea. Now I don't think that's going to happen right away, but President Obama in January announced the new U.S. defense policy, and the essence of this new defense policy is that we are going to shift the center of gravity of our military planning from the middle east and wars around terrorism, to the Pacific and to the task, essentially, of containing China. Although he didn't use that word, that's the essence of it.

The focal point of our new defense policy is going to be the South China Sea, and assisting our allies like the Philippines and Vietnam, in their struggle with China over these contested areas. So the U.S. is now on a collision course with China, which is equally unrepentant in all of this. We have to worry about this. President Obama has said that this area is now going to be the center of the build up of U.S. forces. While we are throwing down forces in Europe and in Iraq and Afghanistan, we are building up our forces in the South China Sea, as is China. So this is really, very worrisome.

The same thing is happening in the East China Sea and in the Falklands. Remember there was a war in the Falklands once, about 30 years ago and then we forgot about it. But now they've discovered oil in the area around the Falklands and it's being claimed by the UK – they started drilling there. And Argentina says, “You're drilling in our territory,” and both sides have sort of geared up their military, but so far there haven't been the kind of near-clashes that you see in the South China or East China Sea, but it's moving in that direction. The same thing is happening in the Arctic, where Russia is building up its capacity to control what they claim as half of the Arctic for just Russia. Canada, The U.S., Norway and Denmark are fighting over the rest, and all of them are building up their forces. So I worry that the struggle over these offshore resources because that's where, like I say the Arctic-offshore, these are where the resources are left. I fear that if we proceed down this path of pursuing aggressively, competitively, what remains of the world's resources in this fashion, it will lead inevitably to conflict.

I don't think we are destined, or that it's inevitable, that we proceed down this path and I want to end with some words about what the alternative might look like. Over time, I think more and more people in the world are going to come to the conclusion that it will be essential to develop an alternative path based on renewable sources of energy and other materials, on efficiency, on new kinds of substitute materials, on conservation, on new ways of living. Now let's understand that, in the short term, economics will favor those who cling to the old ways of doing things. That's because, as I said, our whole world, our whole civilization, our whole economy is organized, is built, was created, when oil and these other materials were abundant and cheap. So the infrastructure is designed to rely on them. But, eventually we'll reach a point not too far off – we'll reach a tipping point – when the cost of preserving that system, that infrastructure, will reach diminishing returns. When the cost of relying on fossil fuels and all the other non-renewable materials will exceed the costs of turning to renewables and alternatives. That has to happen because, as I have tried to explain to you as best I could, the cost of extraction is getting higher and higher and higher, so the cost of preserving the old way of life will rise exponentially.

Graphic on Screen: Tipping Point

So there will come a point when economics will favor the transition to an alternative path. That may not occur in my lifetime, but it will certainly occur in the lifetime of my son Sasha, who is 24, and in the lifetime of my students here in the Five Colleges. I have no doubt about that so, for all of us who begin that transition now, we are the trailblazers. We are the trailblazers who are pointing the way to the world that will come and that has to come, and we will be developing the systems so that when the transition comes, our descendants and our communities will be ready to make that necessary change. So I do think that the change will occur, that it's inevitable, and that the sooner we make that change the better. There will be an advantage for those who make the change early, even though at first there will be higher costs. In the end, those who cling to the old ways may see some short-term benefits, but in

the end the price they will pay will be infinite and the advantage of making the change will be so much greater. Thank you so much for your patience.

[END]