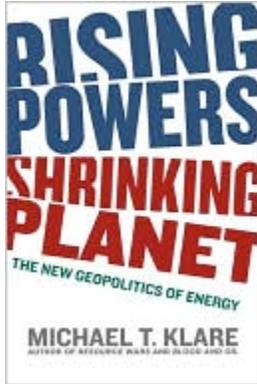




## Rising Powers, Shrinking Planet: The New Geopolitics of Energy

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### Introduction

**JOEL ROSENTHAL:** I have the honor of introducing our speaker this morning, Michael Klare, who will be speaking on the topic of his new book, [Rising Powers, Shrinking Planet: The New Geopolitics of Energy](#).

Those of us who are concerned about ethics, conflict, and energy security have long admired Michael's work. Over the years he has given us the most thoughtful analyses of this topic, always combining realistic assessments of the present situation with positive idea for the future. That blend of realism and idealism is hard to come by, and we very much appreciate this way of thinking, especially here at the Carnegie Council.

Some of you will remember that Michael has appeared at this podium twice before, once in the spring of 2001, to discuss his book [Resource Wars](#), and a second time in the fall of 2004, to discuss his book [Blood and Oil](#). So this morning we complete a trilogy of sorts, with these three books on the theme of energy security.

In preparing for this morning's introduction, I did take a look at the transcript of Michael's last talk here from 2004. He opened it this way (and this is a direct quote):

"I suspect that the news may have had a bit of an effect on your interest in this program. Any of you who have driven to a gas station lately know that prices are rising, and the topic of oil has moved from the business page to the front page of the newspapers and to TV in this country and around the world."

I don't know about you, but I just paid \$4.00 a gallon in Connecticut last weekend. So the more things change, the more they stay the same. That was four years ago, when the price of gasoline was getting our attention.

So we are very fortunate to have the counsel of Michael Klare to help us better understand the situation we are facing today and how we might address it constructively.

In addition to his work on energy security, Michael Klare is one of the most important voices for ethics in the field of peace and world security studies. I have long admired his work as Director of the Five College Program in Peace and World Security Studies at Hampshire College in Amherst, Massachusetts. This program has for years been highly regarded as an intellectual hub for scholars and teachers, and it has helped promote sophisticated and morally grounded curricula for the teaching of international relations

across the United States and across the world.

It's a genuine pleasure for me to welcome Michael Klare back to the Carnegie Council.

## Remarks

**MICHAEL KLARE:** Thanks. That was great.

Obviously, I can't begin by talking about going to the gas pump again, which I might have been tempted to do. Obviously, you are well aware of that, so I don't have to remind you about the price of gasoline.

In any case, we are all aware that the world is facing a very serious problem with respect to the price of petroleum and the availability of petroleum. I think that this is not going to be a short-term crisis at all. I think we are facing a very serious long-term crisis with respect to the price and availability of oil, and not only oil, but other sources of energy—natural gas, coal, uranium, and others. In fact, there are going to be continuing and recurring problems and dangers with respect to energy that I think will be one of the dominant features of the emerging world landscape for years to come.

There are many ways to interpret this emerging crisis over energy. In this country, in the United States, it's going to be one of the major themes in the political campaign this year. You are going to hear a lot, I believe, in the campaign in the months to come. It's going to be a major domestic economic issue. It's going to be an environmental problem for years to come, because 85 percent of the world's energy is provided by fossil fuels—oil, natural gas, and coal—and these are the leading sources of the carbon dioxide, which in turn is the leading source of the greenhouse gases that are heating up the atmosphere. So any attempt to address the global warming issue is basically going to come back to an energy problem. If we hope to slow the warming of the atmosphere, we have to find different sources of energy or we have to use the energy we currently use in a very different way.

This in turn means addressing global transportation issues, because most of the fuel we use for transportation is provided by oil, and this releases carbon dioxide. If we use it in the current fashion to move things around the planet, this will continue to heat up the planet. So, very realistically, we are going to have to move things in a different fashion or burn the fuel in a very different way if we hope to address the global warming problem.

So there are many different ways of reading the current energy problem. For my talk, I want to focus—because we are meeting in the Carnegie Council here—on energy as an international problem, as an international affairs problem. That's what my remarks will be about.

When we come to questions and answers, I'm very happy to address any of these other aspects which I just discussed.

I believe that the current situation that you know about not only is a signal of all those other things that I addressed, but is a profound revolution in international affairs, representing a significant and permanent shift in the balance of world power. I know this is a bold statement, but I think that if you allow me to make my argument, you will see why I come to this conclusion.

Essentially, I believe that we have moved from a world in which energy was sufficient to meet the needs of the world's major consuming nations to a world in which energy supplies are insufficient to satisfy global requirements, and that this in turn is going to affect the balance of world power.

Note that I am not saying that global energy is declining, only that it is not sufficient or not growing sufficiently to meet the rapidly growing needs of the world's consuming nations. This is a topic that could be discussed at great length. Many of you may have questions about it. We don't have time to go into detail, but let me just talk briefly about oil, the most important source of energy, the source of 40 percent

of the world's energy.

Oil has been a source of energy that has been growing steadily since World War II. At the end of World War II, the world consumed about 10 million barrels of oil per day; we now consume on the planet about 85 million barrels per day. The U.S. Department of Energy projects that in 2030 the world will need about 117 million barrels of oil a day. That is their most recent projection.

Up until now, the world oil industry has been capable of growing supply each year in order to satisfy demand. We are very fortunate, we are told, that the oil industry will miraculously be able to supply us with 117 million barrels per day in 2030, exactly the amount that is needed to satisfy anticipated demand.

I don't believe there is any chance whatsoever that this will be achieved in 2030. I think that the world supply will fall far short of that anticipated demand. In fact, there will be a huge gap between the available supply and anticipated demand. That's what I mean by saying that there will be an insufficiency of supply. The available supply may be greater than it is now, although there is some question about that, but it will not rise sufficiently to meet demand.

Why is this so? I could take the rest of the morning to discuss this, but it boils down to three factors:

First, the world's existing reservoirs, which have been, on average, in use for 30, 40, or 50 years—the large oil reservoirs in the Middle East and Latin America, in North America—are on the verge of serious decline. Many of them have reached their maximum output and are already in decline or are facing decline. Some of them are declining very rapidly. So we cannot expect these fields, many of them 50 years old, to continue to increase output.

This wouldn't be a problem if the world's oil companies were reporting that each year they are finding new fields to replace those in decline. But the opposite is the case. The world's oil companies are reporting each year fewer new discoveries than the year before. The rate of new discovery has been exceedingly disappointing. Yes, there have been a few new discoveries in the past five years or so. Off the coast of Brazil there have been one or two discoveries; here and there, a couple of others. But over the past 30 years, there has been a marked decline in the discovery of new fields, and those that have been discovered are going to be exceedingly costly and difficult to bring on line. So we have no expectation of further growth in production in the future from new fields.

The third reason why experts are very pessimistic about growing supply in the future is that those few oil provinces that are coming on line are, almost all of them, in areas that present political or other operational problems, for example, in places like Chad or Kazakhstan or Azerbaijan or Russia or Nigeria, where either the governments have intervened to make it difficult for Western companies to operate or there is a lot of corruption or there is severe conflict—for example, in southern Nigeria, where there is a rebellion against the central government, which has reduced production, which is partly why prices are higher. This is characteristic of virtually all of the new producing areas that are now coming on line.

Add all of this together and there is virtually no possibility that the global supply of oil can grow sufficiently to meet worldwide demand. Put all this together and there will not be a sufficient supply of petroleum to meet anticipated demand in the years ahead.

The same, I would say, is true of natural gas. I would say the same is true of other sources of supply.

So writ large, the global supply of energy is simply not going to be adequate to meet the huge increase in demand that is expected to come from the rapidly growing countries of Asia and other developing areas.

What this means, I believe, is that we are seeing the creation of a new world order—I call it a new world energy order—in which there is a relative handful of very privileged countries with a surplus of energy, enough to meet their own needs and to provide a surplus for sale, for export, to the much larger pool of energy-deficient countries, which must turn to this handful of privileged countries for their energy

requirements. So you have a bifurcated world—a handful of privileged, energy-surplus countries and a much larger pool of energy-deficient countries. I believe that in this new world energy order, power will naturally migrate from the energy-deficient countries to the energy-surplus countries, power and wealth.

We can see already this migration of power and wealth from the vast number of energy-deficient states to the handful of states—Russia, Saudi Arabia, Kazakhstan, Azerbaijan, Sudan, Angola—that have a surplus to export.

We can measure this in terms of the huge accumulation of petrodollars, the visits of high-ranking officials year after year, month after month—the visits to the White House and the Kremlin and so forth—to offers of development aid and the like, and the offers of arms and military assistance, and the favored treatment these countries get at the United Nations and other international fora.

Some of these states, like Abu Dhabi and Kuwait, are using their newfound wealth to establish what are called sovereign wealth funds, state-owned investment agencies that are, in turn, buying up key economic assets in the Western countries. The Abu Dhabi Investment Authority, for example, has nearly \$1 trillion that they have accumulated in the past few years, much of it petrodollars from oil purchases by the energy-deficient countries. They are buying up key assets in the United States and other countries.

Now, the managers of these sovereign wealth funds insist that they have no intention of using these assets for political purposes, but I find it hard to believe that a shift in strategic wealth of this sort will have no lasting political implications, that they won't attempt, in time, to use this for political advantage.

Certainly Russia, which has acquired enormous power as a result of its control over natural gas supplies to countries on its periphery, has used its enormous power in this regard as a source of political leverage over its neighbors, threatening to cut off the flow of natural gas in the middle of winter to its neighbors and, in one case, actually cutting off the spigot, turning the spigot off on Ukraine, on January 1, 2006.

Supposedly, these are disputes over pricing of natural gas, but all observers believe that this was an attempt to secure political advantage or to imply that countries that fail to obey or to defer to the Kremlin will be subjected to energy repercussions in the future. This is another way in which I think the shift in power and wealth to the energy-surplus countries is going to become increasingly severe.

One aspect of this shift in power, then, is the migration of power and wealth from the energy-deficit countries to those with a surplus.

Another equally worrisome aspect of this is the intensification of competition among the energy-deficit countries themselves for access to whatever supplies are available. I worry especially about the competition between the United States and China. That is what I want to talk about for the next few minutes.

The United States and China are now the number-one and number-two consumers and importers of oil. In their pursuit of petroleum, the United States and China are using every means at their disposal, including all kinds of traditional forms of competition but also, increasingly, what you might call unconventional means of competition. Let me just put this in magnitude.

The United States and China are expected to be the major consumers of energy in the years ahead, and China is expected to overtake the United States to be the leading consumer of energy, all-told, by 2025. But it is petroleum that I worry about. The United States is now by far the leading consumer of petroleum and imports about two-thirds of its oil requirements. But China, which imported no oil as recently as 1993, is now overtaking Japan to be the second-leading importer of petroleum and is beginning to catch up and will be closing in on the United States as the leading importer of oil over the next few decades. The problem here, as the world supply of oil reaches its maximum sustainable level, as I indicated earlier, is that the United States and China will have to compete with one another worldwide for these not-growing supplies. So the United States and China will be the most fervent competitors worldwide.

I was saying that in this competition both the United States and China will be using traditional means of competition—buying access to development blocks when they become available, developing joint ventures with foreign oil companies, all of those traditional means, and, of course, diplomatic efforts, visits by the president of the United States to the foreign oil countries, visits by [Hu Jintao](#), who has traveled frequently to Africa and Central Asia and the Middle East, in efforts to curry favor with the leadership of the foreign oil countries.

But in addition to this, what worries me so much is that both the United States and China are also using military means in their efforts to develop ties with these countries. Both are providing arms, military aid, military advisory services, and other forms of military assistance to these countries as part of their efforts to secure close associations with the leading oil-producing countries in Africa, the Middle East, and Central Asia. Of course, the United States has had a historic relationship with Saudi Arabia and Kuwait and the other Middle Eastern countries. Now the United States is extending these kinds of relationships to countries in Africa, especially Nigeria and Angola, and in the Caspian Sea area, in Azerbaijan and Kazakhstan in particular.

But China is following in like manner, developing close military ties with Sudan, but also Angola and Nigeria, competing with the United States. China has close military ties with Iran and, through the [Shanghai Cooperation Organization](#) [SCO], of which Russia is also a member, is developing close military ties with Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan.

Both countries are using similar types of arrangements, providing military ties to local military forces and then, increasingly, following this with military advisers and military support personnel. So there has been and is under way a sharp increase in the military presence of the United States and China in all of these regions. This is symbolized this year in Africa with the creation of the U.S. Africa Command, AFRICOM, the first U.S. overseas military headquarters since the Pentagon created the Central Command in 1980. In my view, this cannot be explained other than as a reaction to growing U.S. dependence on African oil and concern about China's growing presence in the area.

The equivalent for China is a rapid step-up in the military activities of the Shanghai Cooperation Organization, as exemplified by [major war games in which China participated on a very large scale](#)—the first time China sent troops abroad for this kind of purpose—last summer.

So there is an intensification of the military dimensions of this energy competition between the United States and China in a way we have never seen before. What worries me about this - and I want to try to speed up my remarks so that you can ask questions - there are two elements of this that worry me.

One is the involvement of Russia as a party to this competition. Russia doesn't need energy for its own sake, but seeks to control the flow of energy from Central Asia and the Caspian Sea basin to Europe, both for economic purposes and also as a tool of geopolitical advantage. It has its own military organization, the [Collective Security Treaty Organization](#), as a vehicle for forming military links with Kazakhstan, Uzbekistan, Kyrgyzstan, and Tajikistan, and has established military bases in the area, in some cases adjacent to American military bases, as in Kyrgyzstan, and cooperates with China in the SCO. So now you have a three-way geopolitical contest, the United States, China, and Russia, in that area—very reminiscent, in my mind, of the kinds of inter-imperial competition that preceded World War I.

Secondly, you see in the Department of Defense justification for the military buildup now under way in the United States an increasing focus on China as the new hypothetical threat driving U.S. military spending. This can develop a self-fulfilling prophecy, with resource competition as the explanation of why the United States has to increase its military spending.

So I worry that this energy competition between the United States and China can drive a self-sustaining military competition, with dire consequences.

Therefore, I want to conclude with the view that this energy competition of which I speak in this new world order of intense competition for insufficient supplies has got to be a major focus of international relations. It has got to be headed off before it becomes as militarized and as acute as it could well become in the scenario that I described. An alternative path has to become a major priority of the United States domestically as a policy issue, but also as an international priority.

That means two things:

Developing energy alternatives much more rapidly than we are doing at present. There is certainly a lot of effort under way in this country and elsewhere to develop renewable sources of energy and alternatives to oil and the like. But they are not being developed on a large enough scale nearly rapidly enough to replace petroleum and natural gas as these energy supplies become less sufficient to meet global needs. We will have a severe global energy crunch beginning in 2010 and continuing indefinitely into the future. The renewables are not going to be available on a large enough scale at present rates of development to make up the difference. So we really have to work much harder to speed up the development of those alternatives.

I'm happy to talk about those in response to your questions.

Second, I believe—and I'm arguing fiercely about this—that the United States must cooperate with China to develop these energy alternatives as an alternative to international energy competition. If the United States and China engage in a global energy race, we are headed down the path of a new cold war, of a new great game, like the Great Game that preceded World War I. We will engage in an arms race that will consume all the funds that are needed to develop these energy alternatives. We will be in a very scary world indeed.

It's therefore essential that the United States and China cooperate in developing the energy alternatives that are necessary to head off this kind of competition and, in particular, to work together on energy alternatives that do not increase the pace of global warming. China and the United States are the world's two leading consumers of coal and, together, are the leading sources of global warming today and will become much more severe in the years ahead.

So energy cooperation, not competition, with China, in my mind, is the most important foreign policy objective of the next president.

I think I will just stop right there. I think these are the points that we need to address. I look forward to your questions and comments.

Thank you very much.

### **Questions and Answers**

**QUESTION:** You did not mention clean coal, nuclear, heavy oils, tar sands, oil shale as a source of energy.

**MICHAEL KLARE:** Clean coal—and I put quotation marks around "clean coal"—tar sands, nuclear energy, and heavy oil. It would probably take longer than we have time for to answer all of those. Clean coal is a deceptive comment. It's clean in the sense that it has reduced levels of pollutants, but it does nothing in terms of reduction in carbon dioxide emissions. So only by burying the carbon underground is that an acceptable option.

As I indicated in the very last thing I said, I favor cooperation with China in developing coal alternatives, which include burying the carbon underground, [carbon sequestration](#). In my book I talk at some length about the importance of United States-China cooperation in coal sequestration. I think that's critical, absolutely critical, for saving the planet.

Nuclear power is not an option on a small scale—nuclear fission—because a handful of reactors is not going to provide enough energy to make a difference. One thousand or 5,000 reactors would make a difference, but the consequences of that much radioactive waste would be an environmental catastrophe, not to mention the proliferation implications of that. So I don't favor 5,000 new reactors.

Tar sands on a scale necessary to make a difference would be another environmental catastrophe. Two or 3 million barrels a day from Canada, which are the current plans, are not going to make a difference. So when I say there will be insufficient energy available, that's what I mean. All of these other sources of energy are simply not going to provide us with the humongous amounts of energy that are needed.

**QUESTION:** A couple of questions. One is, can you distinguish between oil and petroleum in terms of the supplies of energy that are necessary? The planet is being overrun with automobiles. Those are the major, in many ways, users of refined oil or petroleum and producers of pollution.

The second thing is, what kind of pressure can the using countries, like the United States and so on, put on the countries that have the supplies, since most of those countries are dependent on Western companies for both discovering the fields and then operating the fields?

**MICHAEL KLARE:** I'm not sure I understand the first question.

**QUESTIONER:** You talked about oil. That's one thing. But then gasoline is something else. You have to refine it. So where is the shortage coming in? Is it in the refining capacity or is it the oil itself?

**MICHAEL KLARE:** The shortage is in the supply of petroleum. When I say shortage—I tried to be clear—it's not that the world is running out of petroleum, but that all of the easy-to-produce petroleum is now gone. There is plenty of petroleum left, but it will get much harder to produce.

The second part of your question bears on this, because most of what's left is under the control of the state-owned national oil companies, controlled by Middle Eastern countries and African countries. They are not motivated, necessarily, to increase their output of that. There is very little that any of us can do to persuade them otherwise.

**QUESTIONER:** No kind of pressure?

**MICHAEL KLARE:** The president of the United States, the most powerful man on the face of the earth, supposedly, went to Saudi Arabia, nearly on hands and knees, begged the king of Saudi Arabia, who depends on us for his protection, to increase production and was told to get lost, like some distant satrap. That's exactly what I mean by the shift in power from the energy-deficit to the energy-surplus countries. "Get lost," he was told. That's it.

**QUESTION:** I want, if I may, to just make a very brief comment and then ask you a question. Your characterization of Angola, Sudan, and Nigeria as new world powers I think is kind of overstated. Yes, they have oil, which people want, but, first of all, these are countries that have tremendous problems of their own and are not creating intellectual product. They are not in the manufacturing world. Their only contribution to the world is the oil. I really wonder if that's so powerful a force as you characterize it as.

Related to that, your characterization of AFRICOM, which, I understand, is interested in protecting energy sources—AFRICOM is very new and it's still kind of being evolved. It is structurally simply the transformation of what had been the European Command and the Central Command into a separate command for Africa. So it's not really necessarily the way you characterize it, as the United States militarizing African countries. I think the jury is still out on that.

Of course, we have an election coming up in this country, and presumably if the Democratic Party wins, to put it that way, they would have a different policy from the Republican Party. I don't know if this is all a done deed, the way you are presenting it.

What I really want to ask you about is what your advice would be to the next American president for developing alternative sources of energy. But I did want to offer my questions about your characterization of those African countries and AFRICOM.

**MICHAEL KLARE:** Sure. Thank you. I didn't say that Sudan and Angola were themselves becoming powerful countries. I used the expression "a migration of power and wealth" to them. For example, in the case of Sudan, here's a country that's committing genocide, and yet it has been able to resist efforts by the United Nations and others to send in peacekeeping forces, because it has powerful friends on the UN Security Council. I maintain that it wouldn't have those kinds of friends if it didn't have oil. That's an expression of what I mean.

Angola is a country that is incredibly poor, and yet its elites get red-carpet treatment at the White House and at the equivalent in Beijing. It's getting huge development loans from China, nearly interest-free. China is coming in and building all kinds of infrastructure. It's getting all kinds of goodies that another African country wouldn't see.

So these countries are being privileged in the international system, which other countries without this wouldn't have. That's what I'm saying.

What I should be saying, to be clear, is that the privileged elites within these countries are seeing enormous benefit. The masses in them are not seeing any benefit. That should be very clear. You could go to Abuja in Nigeria and see great wealth and go to the Niger Delta and see no benefits whatsoever.

AFRICOM, you are quite right, is taking on the responsibilities once shared by Central Command and European Command. But if you read the Pentagon literature, one of the reasons, precisely, that an emphasis is being placed on AFRICOM is what I just was talking about, the resource curves, the sense that this new wealth in Africa is creating instabilities, and the instabilities threaten the flow of oil. They are very clear about that. More security assistance will be needed to these African countries, and greater oversight is needed; that the European Command is not very well placed to manage this security assistance; and therefore we need a dedicated headquarters to do that.

**QUESTION:** Just to localize this question, the Sierra Club of New York City is engaged in a campaign to raise awareness of the consequences in New York City of the energy crunch that you are talking about that will be coming over the next few years. Legislation is going to be introduced in the city council to set up a task force, as San Francisco and Portland, Oregon, have done, to anticipate and to prepare for these higher prices.

What suggestions would you have for both government officials and civic organizations in New York to prepare for this?

**MICHAEL KLARE:** I think what you are doing is terribly important. I hesitate, coming from a much smaller city, Northampton, Massachusetts, to suggest what New York should do. New York City has the advantage of a public transportation system. The rest of the United States should be so lucky. Anything you can do to improve public transportation comes first. I don't know whether there is more you could do, but if you could do anything to improve public transportation and to discourage the use of cars, that strikes me as coming first.

Anything you can do to improve the efficiency of heating comes second. Energy efficiency of buildings and heating comes second.

I think I'll stop there. This exceeds my expertise a little bit.

**QUESTION:** Canada is estimated to have in excess of 1 trillion barrels of oil sands and oil shale.

**MICHAEL KLARE:** Equivalent.

**QUESTIONER:** Equivalent, correct. But it's environmentally unfriendly, as you pointed out. However, as the price of petroleum is realized to stay at very high levels going into the future, will not the plans to develop these rise exponentially?

**MICHAEL KLARE:** No.

**QUESTIONER:** Why not?

**MICHAEL KLARE:** Because most of those tar sands are underground, and to bring them to the surface and convert them into a liquid, you need energy. The price of the energy needed to bring them to the surface will also rise exponentially. So the cost of the production of the tar sands will not become beneficial either.

Currently, the tar sand producers use natural gas to heat steam to bring them up. That natural gas is also rising in price and is becoming scarce. That natural gas will be needed for heating and electricity production in Canada. The Canadian government is now rationing the amount of natural gas that will be allowed for that purpose. So I do not expect that the tar sands production will ever exceed more than a few million barrels a day, assuming that the environmental issues are overlooked.

People are talking about building nuclear reactors for this purpose. I find that hard to believe, given the cost of building nuclear reactors. But maybe that will come to pass. I just don't believe it.

I don't think that the use of natural gas, which will become a prized commodity, perhaps even more than oil, will be squandered to produce a liquid fuel for Americans to use in their cars, when Canada will need that natural gas for itself. But we'll see.

**QUESTION:** Professor Klare, I'm in no way trying to minimize whatever you have said in the message. Have you factored in or is there a consideration that 20 years is a long time? Twenty years ago computer science was quite small compared to now. Twenty-five percent of the use of energy in the United States comes from lighting, for example. There is an enormous amount of inefficiency in the delivery of energy, and there are many efforts made in this direction.

Is there a factor as to how much we can save, not by nuclear energy, but by the real application and commercialization of efforts to deliver things in a better way?

**MICHAEL KLARE:** I think you are probably right to say that the greatest savings we could have in energy are through efficiency and conservation. That's where the biggest savings lie. I don't think any of the alternatives that are available to us can be brought on line quickly enough at an affordable cost. So the biggest savings will come through efficiency and conservation.

If that's what you are asking, I think you are absolutely right. Americans are simply going to have to drive less. That's where the biggest savings will come, in less driving.

Lights, too. A lot of progress has already been made in lighting. More can be made. But our biggest energy use—Americans consume one-eighth of the world's petroleum every day in driving. That's more than all of Latin America uses.

**QUESTIONER:** Solar energy is really remarkable, and we are seeing remarkable energy changes that are coming about—rollout solar panels and the possibility of solar energy. I wonder, have you factored that into your discussion?

**MICHAEL KLARE:** Yes. The problem with solar energy is not in solar energy. The problem in solar energy is in transmission lines. That hasn't been solved. But that's an area, I believe, where progress can be

made. The problem is that the concentration of solar energy is in the American Southwest and the concentration of demand is here in the Northeast. The efficiency of transmission lines between the two is very poor.

That might be an area where a breakthrough is conceivable. If we can increase the efficiency of long-distance transmission lines, then it would pay to build huge solar arrays in Arizona and deliver that energy up here. But right now that's a bottleneck.

**QUESTION:** It strikes me that if you look longer-term, all of the alternatives to petroleum—whether it's wind or solar or tide or thermal or nuclear or coal—all produce electricity, every single one of them. Therefore, it's blindingly obvious that our future is going to be electric, whether we want it or not. I realize that long-distance transmission is an issue, technologically. But as one of the previous questioners said, technology is probably our best hope in many areas.

What I don't understand—and I wonder if you could suggest whether there is any hope here—is why our leadership is not focusing on getting us to the electrical future faster, as, really, the only viable option, beyond a military option, for us.

**MICHAEL KLARE:** I'm going to allude back to my college economics history professor, Ernie Hacker, from Columbia University, who taught about the struggle between the canals and the railroads, and different economic interests. I think that our political powers have been dominated by economic interests around automobiles and oil and those traditional economic interests, and we are going to see the rise of new economic interests around these new technologies. They are beginning to make themselves felt. But they have to fight an entrenched power bloc in Washington that is going to resist them and has resisted them.

I think if you look at the National Energy Policy of 2001, the Cheney plan, this was a calculated effort on the part of this old energy bloc to frustrate these new technologies and to push them off a decade, two decades. This was not accidental; it was calculated. It's going to be an uphill struggle to push back that old energy paradigm for the new.

**QUESTION:** Number one, you still haven't dealt with biofuels, especially, say, Brazil bringing in other sources of energy.

But on the balance of power, it is not surprising to have two-power competition. It goes back to Athens and Sparta, and so forth. Certainly during the Cold War there was incredible competition between the United States and the Soviet Union to acquire client states, and very often this was done by military means.

**MICHAEL KLARE:** Exactly.

**QUESTIONER:** Then the question is, are we going to have small wars, as we did during the Cold War, where the biggest powers will fight it out through proxies, or is this going to remain on an economic power level, so that we don't have to have wars that could escalate into nuclear confrontation and other problems?

**MICHAEL KLARE:** Thank you so much for that question.

Now, I am here in part to encourage you to read my book. This is, to a considerable extent, what my new book is about. I do talk about the risk that the struggles in Africa, in the Middle East, and in the Caspian Sea/Central Asian region will develop into proxy wars. I lay out the scenarios for how that might occur. I warn that this is a very real possibility—not inevitable, but a real possibility. So I do hope that you will pick that book up.

About biofuels, yes, I do talk about biofuels quite a bit. We cannot countenance the use of food crops as a source of biofuels—corn ears, in particular. But I favor what is called second-generation ethanol, which is

cellulose, the cornstalks or switchgrass or other nonfood crops. I favor a huge investment in developing technologies to break down the cellulose with enzymes or other means to release the sugar to make that into ethanol.

But right now we are going at the equivalent of a snail's pace to develop that as a fuel. This is another way in which I think the Bush administration has failed us.

**QUESTION:** Surely one way of decreasing demand in automobiles is to increase the price. There have been articles in the local *New York Times* about people shifting out of automobiles into public transportation because of price. If you increase the price from \$4.00 to \$7.00 a gallon, surely that will help decrease the use of automobiles.

**MICHAEL KLARE:** I understand that argument. I'm just a little wary because that's going to hurt poor people the most. I would only favor that if there were mechanisms, through income taxes, to relieve the burden on poor people who have to drive to work or need their cars for work-related activities. That's going to really burden poor people a lot. This has a lot to do with the way in which America is becoming more like European cities. It used to be poor people who lived in the inner city and rich people and the middle class lived in the suburbs. That is now reversing itself. Increasingly, poor and working people live far out and have to drive long distances to work and are suffering terribly from the rise in the price of gasoline—and have to drive to work no matter what, even if the price goes up.

**QUESTIONER:** What about public transportation?

**MICHAEL KLARE:** There is no public transportation in the outer suburbs. That's the problem.

**QUESTION:** I think there is another dynamic here as well, looking forward. It is the economic integration of the world. We owe China. We owe others. They have an interest in our well-being. You have the gigantic corporations that are so global.

I think, since we are so interconnected financially, perhaps the old paradigm of Russia and the United States isn't going to work the same way.

**MICHAEL KLARE:** I would like to think that, but that doesn't stop China from forging these military ties with these other countries to get oil, because they need the oil so desperately. And it sure doesn't stop the United States from using military means to acquire oil.

There is an irrational dimension to all of this that has a life of its own. Some of this, you could say, is a product of the military-industrial complex, a term which has sort of gone out of favor, but is still very much alive. We have this year the biggest defense budget since World War II. The justification is that we have to prepare to fight a future enemy that's not named, but looks an awful lot like where China will be in 25 years' time. There is no other country that fits that imaginary bill but China.

**QUESTION:** I appreciate everything you have said. Terrific.

But it seems to me that what I'm not hearing - I haven't read your book; I'm sorry - there are staggering social implications for this whole energy business.

**MICHAEL KLARE:** Absolutely.

**QUESTIONER:** First of all, the projections of the United Nations are that the world population is going to go from 6 billion to 9 billion in the next 20 or 30 years. We have an aging population. We all live longer. We are obese in this country. We have all this liberal policy that you can't raise the price of food because people won't be able to eat, et cetera, et cetera.

The plain and simple truth is, if there were 4 billion people on this planet, it would be a lot easier to

manage the energy problem than if there are 9 billion.

So how do we deal with this in a realistic way?

**MICHAEL KLARE:** The short answer to that question is to re-imagine "the American way of life." That's the short answer. We now imagine "the American way of life," and I put this in quotation marks—not that, necessarily, any of us live that way, but the way that is projected in American television and movies to the rest of the world—as a huge ranch house on two acres of land with a pool in the back and three cars in front, with a boat behind one of them, which we should all aspire to. It's in pursuit of that dream that Americans have moved 50 miles from their place of work, because that's the only way you can afford a house like that today, which is why people drive so far and use so much oil.

That is clearly unsustainable. The problem is that people in China and India and Brazil and Mexico see that image in the movies and now want to duplicate it. This is the catastrophe that we face. That is impossible for us, let alone anybody else. So we have to re-imagine an American way of life that is more like a European way of life, which is clustered housing near public transit, much less space per person.

**JOEL ROSENTHAL:** Michael, thank you very much. I think we set a record for thoughtful questions. That was really terrific.

**MICHAEL KLARE:** Thank you.

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