Defense Forum Foundation

Congressional Defense and Foreign Policy Forum

Energy and Security: Dealing with Cyber and Other Threats

Speaker:

R. James Woolsey
Former Director of Central Intelligence

Introductory Remarks by:

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SUZANNE SCHOLTE: Good afternoon. If I could have your attention. I’m Suzanne Scholte, president of the Defense Forum Foundation, and I want to welcome you to our Congressional Defense and Foreign Policy Forum.

First, I just want to acknowledge some of the special guests we have in our audience. From the embassy of Algeria, Mohamed Benazzouz, the counselor from the embassy. It’s so nice to have you with us. Frank Gaffney, Center for Security Policy, the president there; from our Defense Forum Foundation Board of Directors, our vice chairman, Ty McCoy and also Jeb Carney from our board of directors. And also some special guests that came up from Houston to be with us, Jason Yoo, the founder and CEO of JDDA and the vice president for business development and marketing, Diane Yoo. Thank you for being with us.

We’re very honored to have Jim Woolsey with us today, who has an amazing and extensive background not only in government service, but also in the corporate and the non-profit world. He’s considered an expert in energy, foreign affairs, defense and intelligence issues, and has been a longtime advocate in developing alternative energy, especially moving away from fossil fuels and developing alternative and renewable fuels. And he helped co-found the United States Energy Security Council.
As many of you know, he’s a former Director of Central Intelligence, served in four administration, including two Democratic and two Republican administrations. He’s a former ambassador to the negotiations on conventional armed forces in Europe. He was a delegate to both the START and the nuclear arms race talks, and he served as general counsel for the Senate Armed Services Committee. And according to our Chairman Bill Middendorf, the most important position he ever held was Under Secretary of the Navy.

Today, he chairs Woolsey Partners as well as the board of the Foundation for the Defense of Democracies. He was born in Tulsa, Oklahoma. We have some Oklahomans here. He’s a graduate of Stanford University, where he received a B.A., Oxford University, where he received an M.A., and Yale Law School, where he was managing editor of the Yale Law Journal. He will be discussing a very, very critical and timely topic, Energy and Security: Dealing with Cyber and Other Threats. It’s my honor to welcome Jim Woolsey. Thank you. (Applause.)

R. JAMES WOOLSEY: Thanks, Suzanne. Sing out if you can’t hear me. I’ll use my court room voice. I was a litigator for 22 years and I just loathe speaking from a podium. So I’m going to walk around and chat with you. And feel free, if you can’t hear me or anything, to wave.

First of all, let me jump ahead to the question and answer period. I’m going to answer a question that always gets asked and so I figured I might as well answer it upfront.

People say I know that you weren’t a career CIA guy. You were only out there for a couple of years, but have you ever participated in any of those, you know, covert operations? And the answer is, yeah, I did once. And this is a small and discrete audience. I think I can share it with you.
It happened because my wife and I – classmates at Stanford – had our class reunion coming up late in my first year at the CIA. She was at the same time Chief Operating Officer of the National Academy of Sciences and was managing the Academy. So, we both had 24/7 jobs and we decided this is crazy – let’s take three or four days off, relax, go see old friends, go to the homecoming game, et cetera. So we decided to go.

The first thing that happened is my chief of security came to my office, and he said, director, I’m afraid we’re going to have to have Mrs. Woolsey go on a different flight because we can’t have anybody named Woolsey on your flight. I said, but wait a minute. My name is Woolsey. And he said, oh, no. No, sir. You’re going to have fly in alias. And, of course, my first thought was, uh-oh, there go the frequent flier mile upgrades. (Laughter.)

So we go out to Dulles and we take my wife, two security men and I, and put her on the flight to San Francisco, and sitting in a nice first class seat with a glass of chardonnay, she takes off for a comfortable ride. The two security men and I go to another United flight. They stop, in those simpler times, in the cockpit and show the pilot and the chief flight attendant they are carrying weapons, and show cards indicating that they are federal officers so they can do this. We went to the back row of coach, the row right in front of the john so you can’t even lean back. I’m wedged in the middle seat in between these two big guys for six and a half hours flying out to California.

As we get off and we’re walking on the jet way, the flight attendant comes over and whispers something to one of my two security men, whose nickname for several different reasons, was Rock. Now, I had not seen Rock even smile in the eight months he’d been on my security detail. But when the flight attendant whispered to him, he just cracked up. Of course, I was curious so I walked over and said, “Rock, what – what’s so funny?” To which he said that the flight attendant had said, “I’ve been on these flights for 20 years and that is the politest and best behaved prisoner that we have ever seen.” (Laughter.) I was grateful because that’s about the nicest thing anybody said about me in my two years on the job.
Today I am going to concentrate on our two principal energy systems and the security issues related to them, and hopefully we’ll have time for questions. In the first place, today they are largely separate from one another. I’m talking about electricity generation on the one hand and transportation on the other. There are other energy systems – we use natural gas for heating buildings, industry use, chemicals, etcetera. But the two big ones are electricity and transportation.

Almost all commentary that lumps those together and utters some sort of generality about energy, energy independence or anything else, is at best misleading and at worst idiotic. Now, why would I say that?

The first place, how many times have you heard this statement: we have a terrible problem with foreign oil. We need energy independence, therefore, let’s build nuclear power plants or a solar farm. Right? And 40 years ago, it would have made sense, because 40 years ago, 20 percent of our electricity came from burning oil. Today, well under 1 percent, really under 0.5 percent, of our electricity comes from burning oil.

So you can build nuclear power plants and solar farms until the cows come home and you won’t do a damn thing about oil use – zip, zero, nichts, null. Oil dominates transportation to the tune of about 96 (percent), 97 percent around the world. There are few things that don’t move on oil products I guess: oh, marathons, fox hunts, a few electric cars, but almost everything basically that moves -- for all practical purposes -- runs on oil.

And oil is a problem that we have created for ourselves that derives in part from where it comes from. But where it comes from is not nearly as important as the price. I’ll get back to that in just a second. We have no foreign supply problem with electricity. We used to buy a little bit of our natural gas to generate a little electricity from Canada. We don’t even do that anymore. As far as electricity is concerned, we run on coal, natural gas, nuclear power, hydro and a little bit of renewables. None of those are foreign based. We have absolutely no problem with foreign supply of the sources of our electricity.
What is the problem with the electric grid? The electric grid is kind of schizophrenic. On the one hand, you can say it is quite possibly the most remarkable and most effective invention of the 20th century. It’s huge. It covers the entire country, makes it possible to plug something in nearly anywhere and you get power. It works most of the time.

On the other hand, we built it beginning in the 1880s and are still modifying it. And for almost the entire stretch of time, from, let’s say, the turn of the century, the beginning of the 20th century, until 9/11, it was put together without a single thought being given to security. It wasn’t just that security was third or fourth on the list. From the point of view of security, the electric grid is really stupidly built.

One of the reasons is because with the combination of deregulation and the division of authority in all sorts of different directions, public utility commissions state by state, DOE a little bit, FERC a little bit, and (NERC) a little bit, the authority over many of its aspects is very, very uncertain and unclear.

There are some 3,500 utilities in the United States. The deputy director of ARPA-E told me the other day that if you add up all the research and development done by those 3,500 utilities annually, it is less than the R&D done by the American dog food industry.

There are sometimes people who work for utilities working on some improvements to the security of the electric grid. But usually this is not done very seriously and usually they don’t talk about it, because they’re worried that if word comes back to someone that they said or wrote or emailed something that suggests that there might be a security problem, then when something bad happens, they’re likely to get sued.

So, you have a tragedy of the commons problem. If one utility improves its security by, let’s say, paying to do something like moving the spare transformers from their normal place –sitting protected by only a
cyclone fence 40 feet from the highway, right next to the operating transformer – and putting it somewhere safer, it may have wasted its money. Because if a neighboring utility does nothing, and a terrorist can take down their transformer and its spare with two gunshots, then you may still have a major overall blackout in spite of the fact that one utility tried to make an improvement in safety.

You can’t fix the grid with respect to security without fixing its overall operations.

And it’s vulnerable not only to kinetic attacks by terrorists. It’s also vulnerable to cyber attacks. We learned this a long time ago, but it recently has just been highlighted by front-page stories in the press about the grid’s cyber vulnerabilities. We’ve also got vulnerabilities to electromagnetic pulse, the natural kind, a Carrington Event of electromagnet pulse caused by the sun. Such a pulse, of the type that could take down much of the electric grid, typically occurs about once a century, and it’s been over a century and a half since the last one of these in 1859.

And so, in a way, we’re kind of due for a Carrington Event, but even if the sun continues to give us a break, there’s a special vulnerability of the grid to nuclear weapons. You do not need anywhere near a sophisticated nuclear weapon or a highly-capable ballistic missile to cause a very serious electromagnetic pulse against an electric grid. You don’t need nearly as capable a system as you need to hit near a target on the ground.

To hit a target on the ground halfway around the earth away or even just a few hundred miles away, you need very accurate guidance. But if you are North Korea or Iran, assuming the Iranians have a nuclear weapon within a year or so, as the President has indicated, then all you really need is a fishing boat and a simple missile such as a SCUD. The Iranians have already tested launching ballistic missiles from small boats by the way. A ballistic missile that will go a few hundred miles, such as a SCUD, like the ones that are being used by the Syrian government against rebels, can be quite effective. A SCUD can carry a payload weighing about a ton.
Forty-some countries have them. A SCUD launched from a fishing boat with a primitive nuclear warhead on it, could well take out a very large share of the electric grid and electronics anywhere near where it detonates. Such a weapon does not need to be able to hit a target, and it could be detonated while ascending.

By the way, we’re not working in the United States on any ballistic missile defense systems now that deal with missiles coming at us in their ascent phase. We were back in the Reagan administration to some extent, not anymore.

The kind of defenses we are working on, to a modest extent, are midcourse and terminal systems which are designed to shoot down a missile’s warhead that is trying to hit a specific target on the ground. But if the missile’s warhead is detonated while it’s still ascending, we don’t have anything that can shoot it down. So if a SCUD launched from a fishing boat, crewed by Hezbollah or by our North Korean friends on the West Coast, detonates up above California or New York, it could take out the electricity of a large share of the United States.

So whether it’s a terrorist with a revolver at an electricity sub-station or a solar-generated EMP phenomenon – a Carrington Event – or a Hezbollah, or North Korean-crewed fishing boat carrying a nuclear armed SCUD, we’ve got some potentially serious threats for which we are not prepared. Any one of those you might regard as farfetched or unlikely. But regarding something as farfetched or unlikely doesn’t make it so, and especially if you look at the spectrum of problems together and say, we really are at a very bad situation because we don’t know what’s going to come at us, whether it’s going to be solar rays or something planned by a human being, but what we’ve got – this electric grid – has some very serious vulnerabilities in either case.

Now, there are various ways to go at this. We can try and repair the existing grid and modify it, but once it’s already deployed, that’s not easy.
One thing we should probably make note of, and this helps with problems other than terrorists, is that solar panels are improving, getting more efficient, getting cheaper. They go through cycles of financial problems, and companies go bankrupt, and Solyndra happens, and all that, but generally speaking over the last number of years, solar panels get cheaper and cheaper and more and more efficient.

What is missing is being able to use those panels effectively to improve our resilience, and the prospects of our climate as well, and not just have the solar panels plugged in to a grid to be used when the electricity can be collected – say mid-day: extremely affordable and safe batteries. And, you all notice that I didn’t say batteries that give you a great deal of energy in a small space, high-energy-density batteries like the lithium ion batteries in cars or aircraft. Those are promising and they’ve got a lot of uses. But I’m not talking about those.

I’m talking about big, lunky, cheap, safe batteries that will go in the basement of a building. Once those will only add 20-30 percent or so to the price of solar-generated electricity and extend its use to nighttime, you are very close to being in a situation where you can get a substantial share – certainly not all, but a substantial share – of your electricity reliably from your roof or basement. From your roof when the sun is shining, and from your basement where the electricity is stored for you to use when you need it.

I do that at home. I’ve got a farm house. I’ve got solar panels on the roof and batteries in the basement. The grid goes down, it will flicker for a minute or two and then we’re operating on the solar – on the stored solar-generated electricity.

Is it ideal? Of course not. Does it provide everything you want? Of course not. But the difference between having some electricity and having none is the difference between an inconvenience – perhaps mild, perhaps serious and the undercutting of civilization.
Now, how many of you ever watch NBC on Monday nights, at 10 o’clock, “Revolution”? “Revolution” is a successful show for NBC. It’s in its second season. And it’s about the United States 15 years after the electric grid goes down. It’s not a pretty story. One needs to realize that we’ve got 18 critical infrastructures in the country – water, food, sewage, et cetera. All 17 of the others depend on electricity. So if the grid goes down, you are not back in the 1980s pre-web, you’re back in the 1880s pre-electricity and very few of us have enough water pump handles, plow-horses and seeds to function in a 19th century economy.

So much for electricity. We’ve got some serious problems that need to be solved, but the first requirement is candor and not mincing words and not pretending the problem does not exist when in fact it does.

Take the other major system for energy in the country, and that’s the products – aviation fuel, gasoline, diesel – that are produced from oil for transportation fuel. What are the difficulties? Well, let’s set aside for right now – climate change issues and environmental issues. For right now I’m going to focus just on security.

We, the United States, borrow substantially over $1 billion a day to import oil. It’s about 1.25 billion (dollars) per day. That amounts to a tax of between 4 (thousand dollars) and $5,000 on an American family of four every year. And that is a tax that does not go to pay the Marine Corps or to fix our state roads. It goes into the pockets of Saudi sheikhs and Venezuelan buddies of Hugo Chavez and so on.

We have around 2 percent of the world’s proven reserves of conventional oil. We have more in the form of unconventional oil, heavy tars, and so forth. But of the strictly conventional oil, as I said, we’ve got about 2 percent. We’ve had some discoveries recently that hey, may take us up to 5 percent. Whoopie do! Headlines all over the over the place. The United States is about to become energy independent, right? Wrong.
Britain in 2008, when the crash came, was energy independent, sort of. According to the much-used definition of “energy independence” meaning “theoretically possible autarky” they were in great shape. They produced about as much oil in the North Sea as they used. So when the crash came, Britain seceded from the world oil market, right? And, they just paid what they wanted to for their own oil and told everybody else to go away, all those tankers and refineries and everything. And Britain seceded from the world market and it was energy independent, right? Wrong. Of course, nobody can secede from the world oil market except maybe during a World War. For all sorts of physical and financial reasons, you can’t do it.

So what did happen with energy independent Britain, when oil to $143 a barrel elsewhere in the world? It went to $143 in Britain too. And Britain had a huge truckers’ strike because their diesel was so expensive.

So the first thing is that although it’s useful to drill, baby, drill in the U.S., as we produce more we just improve our balance of payments. I mean, if we really went great guns, maybe we’d only have to borrow $1 billion a day instead of a $1.25 billion. But, all right, so we improve our balance of payments. Does that have anything to do with our being able to tell the part of the world that pumps most of the oil to go fly a kite? No. We don’t have the power to do that.

You’ve got to do something more than drill if you want to deal with the problem. And what is the problem? The problem is principally that several countries with large reserves in OPEC, starting with Saudi Arabia, can lift oil for about $2 a barrel and sell it for 100 (dollars). They keep discovering new fields and whenever they find one, they say, “let’s not talk about that or do anything about it right now because, you know, our grandchildren will need it.” Wise decision from their point of view.

But it costs us several tens of dollars a barrel to lift oil, whether it’s in North Dakota, drilling in the Gulf, whatever. So with around 2 percent of the world’s oil, with drilling costs of tens of dollars a barrel, we’re going
to take away the power of OPEC which lifts oil for $2 a barrel and has 78 percent of the world’s conventional oil? Give me a break. Could we do anything like that? The answer is, of course. But we would have to become as smart as the Brazilians.

What do the Brazilians do? Well, Brazil can produce very cheap ethanol. It has excellent and ample land for this in their southern regions, and a double growing season. So Brazil makes ethanol more cheaply, certainly, than we do. And after some false starts over the years, the Brazilians finally figured out what they had to do, which is to require all cars to be able to run on gasoline and ethanol or any mixture of the two. And then, when the driver of a car in Brazil pulls into a filling station, there are two pumps, one for gasoline, one for ethanol – and the driver decides how much of each to buy. The two fuels mix fine in the same tank. Many of the cars capable of this are imported from the US.

And what are the prices? It depends. If it was a bad growing season and ethanol was expensive, you might buy gasoline. If there were a war in the Mideast, and gasoline’s prices shot up, you might buy ethanol. It would be up to you. The consumer decides in Brazil, not any regulator, not any big time CEOs of big corporations, and certainly not OPEC. The driver decides at the pump what fuel to drive on. That is competition. That has a real effect on prices at the pump in Brazil because they have real competition in transportation fuel.

We are not personally addicted in the United States to oil, but our cars are. They can’t drive on anything else except oil products other than 10-15 percent ethanol. We could probably produce grain alcohol, ethanol, for the same cost, ballpark, as $3-4 gasoline. One reason ethanol has been so controversial is the various efforts to give it subsidies and trade barriers for it to be table to compete with gasoline. But technically you can drive cars on ethanol fine. Henry Ford thought all cars ought to drive on ethanol, partly because ethanol has higher octane than gasoline. He was opposed to gasoline. But General Motors won, used lead to boost octane, and so we drive on gasoline. Gasoline’s only real advantage was its greater energy density. But you can drive cars on
ethanol just fine. It’s just that it’s not particularly less expensive than gasoline here in the U.S. after you go through the whole process.

But ethanol is not the only alcohol you can drive on. The other alcohol, methanol, was historically called wood alcohol. Human beings have been making it for hundreds of years. We had a substantial methanol business in the United States, up until about 10 to 15 years ago when the natural gas prices went up sharply. Since in the modern era we make methanol out of natural gas, when the natural gas prices went up sharply, people shut down their methanol plants and shipped them off, largely to Latin America.

In the last couple or three years, people have suddenly realized two things. One is that a lot of things that we have been making from petroleum – fuel, industrial chemicals – can be made from natural gas.

For decades natural gas and oil stayed at the same price per BTU (British Thermal Unit). And then, two things happened in the last few years. One is that a marvelous man named George Mitchell figured out– down in Texas – how to put together hydro-fracturing (“fracking”) which had been around for a long time, and horizontal drilling, which had also been around again for a long time.

And as a result of Mitchell’s stubbornness and genius, resisting the advice of almost the entire oil and gas industry, and using largely his own money, he has produced a situation where in very short order – if you want hydrocarbons to make gasoline or an industrial chemical, you can either go to the pot that has $100-a-barrel oil in it – because that’s where OPEC sets the price right now – or you can go to another pot that has the functional equivalent of $20 a barrel oil, called natural gas. Because natural gas today is about one-fifth the price of oil per Btu.

What that means is if you get the chemistry right, making things out of natural gas is making them from a feedstock that is five times cheaper than oil. After this all goes through the various refining and production
processes we should be able to drive cars of the sort we have today on methanol, at roughly two-thirds the price per mile of gasoline (not two-thirds the price per gallon because methanol, like ethanol, is not as energy dense as gasoline). The bad news is that you’d have to fill up somewhat more often. The good news is that you could drive, per mile, for about two-thirds of the price of what you’re driving for today.

How would these trade-offs work in practice? Today a fair number of Americans will drive entirely across town to buy gasoline for 2-3 cents a gallon less than where they usually buy it. Not only that, they’ll brag about it in the bar all night, right? (Laughter.)

So would people, like Brazilians, actually choose to drive on something other than gasoline, and after pulling in the filling station will they buy methanol instead of gasoline? I think there’s a reasonable chance. There’ve been a number of experiments. Ford did quite a few back in the ’80s in California. Driving on methanol worked fine.

What is it – what do you have to do to the car? Three answers. One comes from Sloan Laboratory at MIT. That says that if you convert a car during the manufacturing process to be able to drive on methanol as well as ethanol and gasoline, that would cost you all of $90. It’s essentially the cost of a cheap seatbelt.

My friend, Bob Zubrin, who writes extensively on scientific matters online and does experiments on questions like this says, no, no – the added cost– to be able to drive on methanol – is 41 cents – a single substitute O-ring, available at the local hardware store, made from a different kind of plastic.

Let’s take MIT because that’s the highest estimate, say $100. Double it, say it will cost you $200 to be able to drive at two-thirds of the cost of what you’re paying now at the pump. Still not a bad deal.
So we are in a situation where oil’s positive effect is, from our point of view at least in the United States and in much of the oil consuming world, solely that you get a lot of energy into a relatively small space. That’s about it.

On the negative side, in addition to its cost, there are other problems, to put it mildly. Paul Collier, the head of the African Economics Institute at St. Anthony’s College, Oxford, writes extensively about economic rent, which is income from being able to sell a commodity for well over and above what a reasonable return on capital and labor would be. If you were the Saudis and you lift oil for $2 a barrel and you sell it for $100, you are getting a lot of economic rent.

Collier says it’s not accidental that nine of the 10 leading oil exporters in the world are dictatorships or autocratic kingdoms. Only nice Norway is, in fact, out of place in there. Canada is 11th, by the way. It’s also not accidental that of the 22 countries in the world that get more than 60 percent of their national income from oil and gas, all 22 are dictatorships or autocratic kingdoms.

What’s going on here? Collier says that if a functioning democracy like Canada or Norway discovers a lot of oil, they’re not going to have a dictatorship, they just get richer. But if you have a dictatorship or an autocratic kingdom run by a handful of people, all of that economic rent comes to them, and they enhance their power.

They may do what King Abdullah of Saudi Arabia did two-plus years ago, when he was in the hospital in the U.S. and the Arab Spring started. King Abdullah checked himself out, flew back to Saudi Arabia, increased the Saudi budget by about $160 billion or so, and all those young men standing around the streets of Saudi Arabia because they don’t work – 90 percent of the commercial jobs in Saudi Arabia are held by non-Saudis – now have some reason not to join the other rioters in the Arab world. What’s a good excuse? How
about being able to open your pocket and let the Saudi king funnel into it huge amounts of money that he obtains, essentially, as a tax on us oil consumers.

I’ll close with one last point. It’s not politically correct in Washington to talk about any link between terrorism and any religion. But I’m not a real politically correct guy.

When I was Chairman of the Board of Freedom House I got to know very slightly the former President of Indonesia, Abdurrahman Wahid. I only spent a few hours total with him over several years, but it was enough for me to learn what a remarkable man he was.

His ancestor some 20 generations back had a leading role in rallying the Javanese to repulse attackers espousing Wahhabi-type Islam. His family and he had for many years been at the heart of moderate Indonesian Islam. He used to rent soccer stadiums and put on free rock concerts for kids. He would take Indonesia’s leading young rock star with him, have two or three numbers in the program that promoted religious liberty, and then have the rock star teach the kids a song about religious liberty. And then the former President of the country (he headed a group called “LibForAll”) would come out and explain how important religious liberty was. That is at least one man’s and group’s practice of Islam. So I am definitely not talking about Islam as a whole in what I’m about to say.

Another thing that happened just after I was Chairman of the Board of Freedom House, was that a group of American Muslims from Northern Virginia came to Freedom House. Nina Shea was the head of our Institute for Religious Freedom, and they brought her their own religious instruction materials that they prepared for their kids to teach them Islam. We leafed through these, and they were perfectly reasonable instructions.

But the other thing they brought were the instruction materials that Saudi imams had just left behind, the way they did frequently. They would show up with their diplomatic passports, take away the materials that the
Muslims in Northern Virginia had produced themselves, and replace them with the Wahhabi materials they brought from Saudi Arabia.

I read much of the material myself, so I’m not reporting on somebody’s report.

One lesson I particularly remember was the instructions for tenth grade children on how to kill homosexuals. There were three permitted ways in the materials. One is to throw him from a high place. It seemed that they wanted him to be high so he would be terrified as long as possible on the way down and so he would be sure to be killed. The second is to stone him to death, but you want to make sure you don’t use big rocks because that would knock him out too soon. And the third is to burn him alive. That’s Wahhabi instructions to eighth grade kids.

Lawrence Wright, author of “The Looming Tower,” I think the best book at least that I’ve read on 9/11, says that around two percent of Muslims live in Saudi Arabia but those 2 percent control about 90 percent of the world’s Islamic institutions. So what is the oil money going for when your family pays four-to-five thousand dollars per year to foreign oil suppliers? Among the places it’s going is to construct religious instruction materials, sent around the world, that are not written by the followers of Abdurrahman Wahid of Indonesia. Rather the materials are coming right from where the money is, which is where the oil is. And they are being used to teach tenth graders to make sure that they don’t use too big a stone when they kill a homosexual because you shouldn’t want him to die fast. So I would say there are a number of issues about oil we need to get on top of. A very large number indeed.

I can try and do questions if people have time. I don’t – if anybody has to leave, feel free.

Q: The concept of peak oil, is that a legitimate concern – (off mic).
MR. WOOLSEY: Is the concept of peak oil a legitimate concern? It was usually held by a – has been held by a rather small minority of geologists, but some of them were quite distinguished. I think it’s a legitimate argument. I hear a lot more that the Saudis and some others in that part of the world, keep discovering more and more fields and not developing them, saving them for future generations.

But OPEC can set the price, given the current structure, given their current power probably for a long time, even if oil is beginning to peak to some extent. That’s just going to make it more expensive. But it’s not real likely that we’re going to take over the dominance of the world’s oil industry again, as we had back before the 1970s, and find huge amounts of domestic oil that is much cheaper than anybody else’s oil to lift.

The enthusiasm for the oil produced by drilling in the U.S. is to my mind badly overdrawn because it helps with balance of payments and some added employment but that’s about it. It’s not unimportant. If you have the pipeline from Canada, you’ll have some refineries that will add more business down in Texas. New jobs, that’s good. But natural gas is a game changer because it’s now one-fifth the price of oil per unit (BTU) of energy.

Now if we pretend that there’s some incredible discovery that the United States, and we don’t have just 3 (percent), 4 (percent), 5 percent of the world’s oil but 80 percent of it, and it costs us only $2 (dollars) or $3 a barrel to lift it, OK, yeah, then things change. So barring something like that, it’s the natural gas that really is changing everything, I think. (off mic).

Q: What is the cost of – (off mic) – OPEC countries – (off mic) – keep stability by the necessary military – (off mic).
MR. WOOLSEY: What is the price at which the OPEC countries are not going to be able to continue to cut back on the amount of oil they pump – the price at which there’s some kind of a reaction in the rest of the world that takes that flexibility away?

Q: (Off mic) – in other words, leave it inside, but they can cut – (off mic) – $20 a barrel. That’s –

MR. WOOLSEY: No. No. I think the likelihood today would be much higher. For the Saudis, back before 1979, the year of the attack on the great mosque in Mecca and the coming to power of Khomeini in Iran, things were a little more relaxed. But for the last 40 years, they have not been relaxed, to put it mildly.

I think the answer to John’s question is that they now have a price -- they call it the “fair price” -- which they really can’t go below in order for them to be able to do what I described earlier: buy off all the young people and keep themselves in power. They probably could have done that OK before ’79, for around 8, even 15 dollars a barrel. Even into the late ’90s, we had oil around $10 a barrel.

But today the need to keep the lid on – their worries about all that is driving them, and especially driving the Iranians and the Russians, who aren’t in OPEC but have a big impact on the market, driving the Venezuelans – all these folks are being driven to keep oil up close to 100 dollars a barrel in order for them to be able to get as much cash out as they possibly can in order to maintain their dominance.

It’s not a normal supply-and-demand-affected market because the demand for oil is so inelastic. If you increase the price of gasoline 10 percent, you don’t reduce driving by 10 percent, you reduce it by well under 1 percent. Most all of the economic writing about oil assumes that there’s the same kind of elasticity of demand that there is for, say, hot chocolate. I mean, you know, I like hot chocolate but if I can’t get hot chocolate, I’ll probably find something else to drink in the morning. Maybe I’ll get a tea, I don’t know.
But when you can’t do that, when there’s no other liquid you can use for transportation, the demand is extremely inelastic, and that’s what gives OPEC both the ability to charge pretty much what they want and the need to – and the ability to do that in such a way as to keep a lid on explosive riots.

Q: You’re obviously speaking to a Capitol Hill audience. There are two pieces of legislation that address issues that you’ve raised, very important today. One, I believe, is called the SHIELD Act on the EMP problem and the other is the Open Fuel Standard. I wonder if you might just comment on the importance of doing something about this.

MR. WOOLSEY: Well, the SHIELD Act – I’ll let somebody else who knows a little bit more about it talk, if they’d like to. It’s an extremely good idea to help us move far more than we have been able to in the past to protect the U.S. from magnetic pulse, either human caused or solar-caused.

The flexible fuel provisions in the other bill essentially require automobile manufacturers, in order to sell in the United States, over a several year period, five to 10 years, to do what I described earlier: modify their cars in the process of production so that an increasing share each year will be able to run on gasoline and ethanol or methanol.

We may be much closer to this now than the car companies are saying because if you had a really able engineer or scientist, like Bob Zubrin, go through the parts lists for the Chevy Suburbans that are shipped to Venezuela and are completely flex-fuel-constructed for gasoline and ethanol. And the parts list to the Chevy Suburbans like the one I used to drive that are sold here in the US, don’t have anything stating that they are flex fuel. The parts list of the Suburbans sold here and the ones sold in Brazil are, I’m told, identical. What may be different is just the software program. I don’t know for sure, though.
And to get methanol into the picture, Bob says it’s a 41-cent O-ring plus a reprogramming of the car’s computer. Maybe MIT’s Sloan Laboratory is right, it’s a $90 change, plus some software programming. I don’t know, but when my friends in the automobile industry say mandates, mandates, are terrible, we can’t have mandates, I say, well, look, this is a mandate that is cheaper than the mandate of adding one seatbelt. And it’s much cheaper than the mandate we pay because OPEC sets the price of oil.

Now, we might ask them, why don’t you just go ahead and do this – build the cars flex-fuel – don’t wait for a mandate, just do it, and use it in an advertising campaign. But if you won’t do that, if you’re got to be mandated, isn’t it better for you to be mandated to the tune of $90 per car than for OPEC to mandate us that we will put in their pockets 4 (thousand dollars) to $5,000 per American family every year? So, you know, on those two bills – and the second one, I know, has a large number of cosponsors in both Houses and across the aisle – there’s nothing exclusively Democratic or Republican about these issues.

Q: Would you comment on the role the financial markets play in oil prices?

MR. WOOLSEY: The role financial markets play in the oil prices. Well, I think it’s safest to say it’s mainly affecting the edges. People go short, they go long, they buy large amounts of oil to keep in Oklahoma in storage. It’s a complicated business, but it doesn’t affect the basic elements that allow OPEC to control the market – the very inelastic demand, OPEC’s oil being cheap to lift, and OPEC’s ownership of over ⅔ of the world’s proven reserves. And so by going short, going long, et cetera – if enough people do it – you can affect the price some, but it’s kind of the question of whether it’s going to be $110 or $105. There will be big headlines about the battle between the Iranians and the Saudis. The Saudis want cheaper oil and it turns out it’s the difference between $102 and $109.

So I don’t think the financial markets substantially drive oil prices. A lot of people like to blame the financial markets so they won’t have to blame the cartel. But I think the whole thing, 90 percent-plus, is really
not about financial markets. It’s this underlying inelasticity of demand and OPEC’s controls, that are far and away, the largest determinant of the oil price.

Q: Once we get to the solution to the two problems – the storage of electricity and the open-standard flex fuel cars – a lot changes. There’s still a practical challenge both in cost and timeline to get the infrastructure in place in the transportation system – the tanks and the pumps and the distribution system.

You’ve clearly thought a lot about this. How would we – what are the costs, what are the timelines and how would we solve that? And I think you have to stipulate that we’re not going to have a government subsidy for putting new tanks and pumps and – (inaudible) – gas pump.

MR. WOOLSEY: Yeah. I agree. Well, let’s look at the oil and transportation first. I imagine station owners will tell you that once about 15 or 20 percent of the cars have the capacity to use methanol, then stations will start putting in an added tank and a pump. This is not rocket science. We did this when we went to the lead-free alcohol at the pump. It’s a few tens of thousands of dollars investment per filling station.

But the thing about methanol is that if it stays in this ballpark of approximately two-thirds the price per mile of gasoline, you may have a lot of places – Wal-Mart, a lot of places – that say, hey, you know, I can make some money on this, and they will make money now on selling fuel instead of its just being a loss leader to get people in to buy Cokes and candy bars. That’s where most stations make their money today.

So I think that the investment will come, but the government – I agree – the government should not be doing it. The government doesn’t build the tanks and pumps. If the market does, once they see they can sell methanol, then it will take off.
And as far as electricity is concerned, in Bangladesh I think it is, you can buy at the market for 30 dollars or so a little kit that has one or two watts, not kilowatts but watts, of solar panels with a small battery. And then the kit also has a cell phone charger with a couple of LEDs and a little radio. And I think if you get the deluxe model at twice the price, you may be able to get a tiny refrigerator.

What refrigerators are used for is largely medicine for animals. Animals are wealth. If you have 10 goats and they’re healthy and your neighbor has three and they’re sick, you are a big deal.

Life in Bangladesh without electricity is grueling. If the family’s cell phone can only be charged by the mother’s walking miles to the next town to charge it, the difference between having those three or four tiny amenities in the kit and not having them is gigantic. People who make products for recreational vehicles in the US have some similar types of things that are used so you don’t have to run your refrigerator in the RV on the battery of the car.

It is not hard to come up with a small kit that will keep people functioning in the event of a storm like Sandy. You don’t have to completely convert the electrical grid. You can say, I don’t trust you, grid, for emergencies so I’m going to have something that I can do a little bit with. And by next year, you might say, you know, that performed pretty well in a storm, but I’d really like to have something that would keep one oven and one refrigerator on, and maybe the hot water at the bathtub. How much would that add? How many panels? How many batteries? I think you don’t have to do everything. The difference between having a little bit of electricity and none is huge.

So whether it’s Bangladesh or suburban Maryland, Virginia and the District, having some ability to utilize solar and some storage of electricity for utilization in the home, is pretty easily done. And as time goes on, and the cells get cheaper and the batteries get cheaper, people I think will move to a situation where it’s more like 30 percent, 40 percent of their electricity can come from their own ability to generate.
And the software exists. Utilities don’t like it, but it exists. The software exists to be able to feed into the grid in normal times, but then, if something bad happens to let your small, local generating capacity provide the essentials.

But I completely agree about subsidies. I’m not advocating subsidies here. The only mandate we need is – if the automobile companies aren’t smart enough to provide flex fuel vehicles themselves – to require the companies to produce them by spending the same amount of money they would for adding a cheap seatbelt.

Looks like I wore the gang out. (Laughter.) Thank you. (Applause.)

MS. SCHOLTE: Thank you. Thank you all for joining us today.

(END)