

THE BROOKINGS INSTITUTION
90th LEADERSHIP FORUM SERIES

ENERGY SECURITY:
CAUSE FOR COOPERATION OR COMPETITION?

SENATOR RICHARD LUGAR

Monday, March 13, 2006

10:30 a.m. - 12:00 p.m.

[TRANSCRIPT PREPARED FROM A TAPE RECORDING.]

P R O C E E D I N G S

MR. TALBOTT: Good morning, everybody. There are still a few seats, one here, one there, so anybody who wants is welcome to come on up. I'm Strobe Talbott, the president of Brookings, and I want to welcome all of you here this morning. I want to particularly welcome two good friends from the diplomatic corps, Ambassador Pashayev of Azerbaijan and Ambassador Lund of Sweden.

And I want to give a particular word of welcome to our guest of honor today, Senator Richard Lugar.

Senator Lugar is quite simply a paragon of the values that we cherish here at the Brookings Institution. His career has been marked by independence of thinking, an ability to combine loyalty to and leadership in the Grand Old Party, with a true spirit of bipartisanship and civility of discourse, which, by the way, in this town, and in this season, are commodities like fossil fuels that are in short supply.

While he has ably represented the people of Indiana, he has also made the world a safer place, which I would suggest makes our guest today a "global Hoosier."

Mr. Chairman, I would like to thank you, on behalf of all of us at Brookings, for agreeing to inaugurate our 90th anniversary lectureship series. And by the way, my sources tell me, and of course I will never reveal who they are, that you've got some other anniversaries coming up this year. This is the 30th year of your service to the United States Senate. You're also celebrating 50 years of marriage later this year, and someone on your staff, who keeps track of these things, says that very shortly, you will be casting your 11,000th vote on the floor of the United States Senate.

And if only for that reason I would ask everybody to turn off your cell phones, because if a cell phone goes off, by sheer force of habit, Senator Lugar is likely to leave the podium and go up to the Hill and try to vote.

Senator Lugar is going to speak to us today on the very timely and important subject of energy security which of course is an issue that falls right at the nexus of foreign and domestic policy.

I might add that I was, as a Prius owner myself, I was very interested to see him drive up, a few minutes ago, in a Prius hybrid. So he is part of the solution to this problem in many different respects.

After his speech, Senator Lugar has agreed to stay around and join with all of you in a discussion, which will be led by Carlos Pascual, our vice president and director of foreign policy studies.

It's worth mentioning, by the way, that Carlos has joined us only rather recently here, at Brookings, and the last time I saw Senator Lugar was at a State Department ceremony presided over by Secretary Rice, celebrating Carlos's distinguished career as a Foreign Service officer.

And by the way, during his years as a diplomat and policy maker, Carlos had quite a number of opportunities to appear before Senator Lugar and his committee, and I'm sure that Carlos is looking forward to his part in today's program for a variety of reasons, the sheer honor of it, of course, but also, this will be a rare and maybe even unprecedented opportunity for Carlos to put some questions to the senator.

And by the way, you will all have the same opportunity as well.

So Senator Lugar, thank you again for being with us.

[Applause]

SENATOR LUGAR: Well, it's a wonderful privilege to deliver this inaugural speech for the Brookings Institution's 90th Leadership Forum Series. I've had the opportunity to come here to share thoughts on many occasions over the years, and we've always had a very generous reception.

I appreciated especially receiving the invitation to speak and such a very generous introduction from my good friend, Strobe Talbott, who has been a source of sound counsel for many years, and who continues to provide outstanding national and international leadership. It will be a special privilege to be questioned by Carlos Pascual, because not only have I had a chance to ask him questions, but he has mentored me during visits to Ukraine and other strategic points in which our foreign policy was being manifested.

Last August, I represented President Bush on a diplomatic mission to North Africa. Now the president asked me to go to Algeria and Morocco to facilitate the release of the longest-held prisoners of war in the world, the 404 Moroccan soldiers, some of whom have been held since the 1970's by the Polisario Front operating out of Algeria.

American diplomats had discussed their potential release and General Jim Jones, supreme allied commander Europe, had offered to transport the POWs home to their families, if we were successful.

After this humanitarian mission had been fulfilled, I had the opportunity, with the administration's blessing, to continue on to Libya for meetings with Libyan officials, including Muammar Qaddafi.

While staying overnight in the Corinthia Hotel in Tripoli, overlooking the Mediterranean, I came face to face with a microcosm of the new reality of global economic life. It was impossible to walk around the hotel without meeting someone who was hoping to tap into Libya's oil reserves.

The hotel was populated with representatives from China, from India, and from Western oil companies, who were in Libya to stake out drilling or refining operations for every pool that the government might make available.

The world had come to the Corinthia Hotel to compete for the energy opportunities that were expected to develop with Libya's hopeful return to the international mainstream.

Now I relate this incident simply to underscore how rapidly the world is changing due to the expansion of energy demand.

These conclaves of modern day oil prospectors can be found wherever there are proven energy supplies and a government willing to bargain. Indeed, my delegation also saw evidence of this in natural gas-rich Algeria. The Chinese and Indians, with one-third of the world's population between them, know that their economic future is directly tied to finding sufficient energy resources to sustain rapid economic growth. They are negotiating with anyone willing to sell them an energy lifeline.

The gasoline price spikes following the Katrina and Rita hurricanes underscored for Americans the tenuousness of short-term energy supplies. But as yet, there is not a full appreciation of our economic vulnerability or the competition that is already occurring through the world.

In a remarkable moment during the State of the Union Address, President Bush caught the attention of the nation with five words, and I quote. "America is addicted to oil."

Those five words probably generated more media commentary than all the rest of his remarks that evening combined.

I had an opportunity soon after the speech to talk to the president about energy, and he admitted that he had not anticipated the impact of that statement or that some commentators would find it incongruous. I believe he is genuine in wanting to devote more focus to pursuing alternative energy sources. But his Texas roots, his administration's high-profile advocacy of opening up the Arctic National Wildlife Refuge to drilling, and other associations with the oil industry, have created long-standing public impressions that the president is an oilman who believes in the oil economy.

Though not hostile to alternative energy sources, the Bush administration clearly downplayed their significance during the early part of his presidency.

Vice President Cheney, who oversaw Bush administration energy policy, stated on April 30, 2001, and I quote: "Years down the road, alternative fuels may become a great deal more plentiful than they are today. But we are not yet in any

position to stake our economy and our way of life on that possibility. For now, we must take the facts as they are. Whatever our hopes for developing alternative sources or for conserving energy—and that's part of our plan—the reality is that fossil fuels provide virtually 100 percent of our transportation needs and an overwhelming share of our electricity requirements. For years down the road, this will continue to be true." End of quote from the vice president.

For decades, in fact, the energy debate in this country has pitted so-called pro-oil realists against idealistic advocates of alternative energy. The pro-oil commentators have attempted to discredit alternatives by saying they make up a tiny share of energy consumed and that dependence on oil is a choice of the marketplace.

They assert that our government can and should do little to change this. They have implied that those who have bemoaned oil dependency do not understand that every energy alternative comes with its own problems and limitations.

Lee Raymond, the former CEO of Exxon offered an example of this line of reasoning in 2005, and I quote from Mr. Raymond, academic

"There are many alternative forms of energy that people talk about that may be interesting. But they are not consequential on the scale that will be needed, and they may never have a significant impact on the energy balance. To the extent that people focus too much on that, for example, on solar or wind, what they are doing is diverting attention from the real issues. And 25 years from now, even with double-digit growth rates, they will still be less than one percent of the energy supplied to

meet worldwide demand. I am more interested in staying focused on the 99 percent than the one percent." End of quote from Mr. Raymond.

Now, indeed, advocates of alternative energy must resist the rhetorical temptations to suggest that energy problems are easily solved. They are not. Relieving our dependence on oil in any meaningful way is going to take much greater investment of time, money and political will. There is no "silver bullet solution." But the difficulty of solving the problem does not make it any less necessary. The president's State of the Union Address indicates that he understands this.

Now whether or not one classifies America's oil dependence as an addiction, the bottom line is that with less than 5 percent of the world's population, the United States consumes 25 percent of its oil. If oil prices remain at \$60 a barrel throughout 2006, we will spend, that is, the United States, about 4320 billion on oil imports this year.

Most of the world's oil is concentrated in places that are either hostile to American interests or vulnerable to political upheaval and terrorism, and demand for oil will increase far more rapidly than we expected just a few years ago. Within 25 years, the world will need 50 percent more energy than it does now.

With these basics in mind, my message is that the balance of realism has passed from those who argue on behalf of oil and a laissez faire energy policy that relies on market evolution, to those who recognize that in the absence of a major reorientation in the way we get our energy, life in America is going to be much more difficult in the coming decades. No one who cares about United States foreign policy,

national security, and long-term economic growth can afford to ignore what is happening in Iran, Russia, Venezuela, or in the lobby of the Corinthia Hotel in Tripoli. No one who is honestly assessing the decline of American leverage around the world, due to our energy dependence, can fail to see that energy is the albatross of U.S. national security.

We have entered a different energy era that requires a much different response than in past decades. What is needed is an urgent national campaign, led by a succession of presidents and Congresses, who will ensure that American ingenuity and resources are fully committed to this problem.

We could take our time if this were merely a matter of accomplishing an industrial conversion to more cost-effective technologies. Unfortunately, United States dependence on fossil fuels, and their growing scarcity worldwide, has already created conditions that are threatening our security and prosperity and undermining international stability.

In the absence of revolutionary changes in energy policy, we are risking multiple disasters for our country that will constrain living standards, undermine our foreign policy goals, and leave us highly vulnerable to the machinations of rogue states.

The majority of oil and natural gas in the world is not controlled by those who respect market forces. Geology and politics have created petro-superpowers that nearly monopolize the world's energy supplies. According to PFC Energy, foreign governments control up to 77 percent of the world's oil reserves through their national

oil companies. These governments set prices through their investment and production decisions, and they have wide latitude to shut of the taps for political reasons.

I am not suggesting that markets won't eventually come into lay to move America away from its oil dependence. Eventually, because of scarcity, terrorist attacks market shocks and foreign manipulation, the high price of oil will lead to enormous investment and political support for alternatives.

Given enough time, overcoming oil dependence and imbalances is well within the scope of human and indeed, American ingenuity.

The problem is that such investment cannot happen overnight and even if it did, it would take years, even decades to build supporting infrastructure and to change behavior.

In other words, by the time a sustained energy crisis fully motivates the market, we are likely to be well past the point where we can save ourselves. Our motivation will come too late, and the resulting investment will come too slowly to prevent the severe economic and security consequences of our oil dependence. This is the very essence of a problem requiring government action.

The first step is to admit how grave the problem is. Hopefully, we will look back on President Bush's declaration that America is "addicted to oil" as a seminal moment in American history, when a U.S. president said something contrary to expectations and thereby stimulated change.

Like President Nixon, using his anti-communist credentials to open up China, or President Johnson, using his Southern roots to help pave the way for the Civil

Rights Act. President Bush's standing as an oilman would lend special power to his advocacy if he chose to initiate an all-out campaign for renewable energy sources.

As a national security problem, energy is unique in that the risks we face from this single condition are diverse and are intensifying simultaneously.

In fact, our energy dependence creates at least six different threats that could directly or indirectly undermine American security and prosperity. Each of these threats could be worthy of a speech all by its own, but today, I will provide a much abbreviated review.

First, as we have seen, oil supplies are vulnerable to natural disasters, wars, and terrorist attacks that can disrupt the lifeblood of the international community.

The entire nation felt the spike in prices caused by Hurricanes Katrina and Rita last year. But these shocks, which helped send the price of oil to \$70 a barrel, were minor compared to what would occur if major oil processing facilities in Saudi Arabia were sabotaged.

In late February, terrorists attempted such an attack. They penetrated the outer defenses of Saudi Arabia's largest oil processing facility with car bombs before being repulsed. A successful terrorist attack, either through conventional ground assaults, suicide attacks with hijacked aircraft, terrorist-inspired internal sabotage, or other means, would be devastating to the world economy. Al Qaeda and other terrorist organizations have openly declared their intent to attack oil facilities and to inflict pain on Western economies.

Recently, we have also seen the shutdown of a fifth of Nigeria's production by militants, and Iraq's continuing struggle to expand its oil production capacity amidst terrorist attacks.

The vulnerability of oil supplies is not a new concern but the lack of spare oil production capacity is new. As recently as four years ago, spare production capacity exceeded world oil consumption by about 10 percent. As world demand for oil has rapidly increased in the last few years, spare capacity has declined to less than 2 percent. Thus, any major disruption of oil creates scarcity that will drive prices up.

These circumstances require massive expenditures to preserve our oil lifeline. One conservative estimate puts U.S. oil-dedicated military expenditures in the Middle East at \$50 billion a year.

Second, over time, even if oil and natural gas supplies are not disrupted in dramatic ways that produce local or global economic shocks, worldwide reserves are nevertheless diminishing. This is occurring within the context of explosive economic growth in China, India, Brazil, and many other countries. The demand for energy from these industrializing giants is creating unprecedented competition for oil and natural gas.

Americans paid 17 percent more for energy in 2005 than in the previous year. That increase accounted for 40 percent of the rise in the consumer price index. Last November, we spent more than \$24 billion on oil imports, accounting for more than a third of our trade deficit.

To meet world oil demand, the International Energy Agency estimates a need for \$17 trillion in investment, with the bulk going to the Middle East. But political and economic conditions may not let this investment happen. Even if some investment does occur and reserves prove to be much larger than anticipated, there is no guarantee that hostile governments will either choose to develop that new capacity or reserve, or make any new oil available to the United States.

In the decades to come, price will not be the only issue. We will face the prospect that the world's supply of oil may not be abundant and accessible enough to us to support continued economic growth in both the industrialized West and in large, rapidly-growing economies in addition. As we approach the point where the world's oil-hungry economies are competing for insufficient supplies of energy, oil will become an even stronger magnet for conflict and threats of military action, than it already is.

Third, the use of energy as an overt weapon by producing nations is not a theoretical threat of the future. It is happening now. Oil and natural gas are the currency through which energy-rich countries leverage their interests against import-dependent nations such as ours.

Iran has repeatedly threatened to cut off oil exports to selected nations, if economic sanctions are imposed against it. Similarly, Hugo Chavez in Venezuela has issued threats of an oil export embargo against the United States.

In January, Ukrainians were confronted by a Russian threat to cut off natural gas exports in mid-winter, if Ukraine did not submit to a fourfold price increase. Russia took action to deny some natural gas to Ukraine. The dispute led to

sharp drops in gas supplies reaching European countries that depend on natural gas moving through Ukrainian pipelines from Russia.

Russia charged that Ukraine was diverting gas intended for Austria, Italy, France, Hungary and other European nations. Eventually, the confrontation was resolved with a near doubling of the price of natural gas sold by Russia to Ukraine. In contrast, Russia did not inflict such a price increase in Belarus, considered by Moscow to be a good partner, compared to the pro-Western Ukrainian government. The episode underscored the vulnerability of consumer nations to their energy suppliers.

We are used to thinking in terms of conventional warfare between nations, but energy is becoming the weapon of choice for those who possess it. It may seem to be a less lethal weapon than military forces, but a natural gas shutdown to Ukraine, in the middle of winter, could cause death and economic loss on the scale of a military attack. Moreover, in such circumstances, nations would become desperate, increasing the chances of armed conflict and terrorism. The use of energy as a weapon might require NATO to review what alliance obligations would be in such cases.

Fourth, even when energy is not used overtly as a weapon, energy imbalances are allowing regimes in countries that are rich in oil and natural gas to avoid democratic reforms, and to insulate themselves from international pressure and the aspirations of their own people.

We are seeing in Iran and Venezuela the cultivation of energy relationships with important nations that are in a position to block economic sanctions.

For decades, we have watched Saudi Arabia and other Gulf states use oil wealth to create domestic conditions that prevent movement toward democracy.

In Russia and Nigeria, energy assets have offered opportunities for corruption. In many oil-rich nations, oil wealth has done little for the people, while ensuring less reform, less democracy, fewer free market activities and more enrichment of elites.

Beyond the internal costs to these nations, we should recognize that we are transferring hundreds of billions of dollars each year to some of the least-accountable regimes in the world.

Some are using this money to invest abroad in terrorism, instability, or demagogic appeals to populism.

Now at a time when the international community is attempting to persuade Iran to live up to its nonproliferation obligations, our economic leverage on that country has declined due to its burgeoning oil revenues. If one tracks the arc of Iran's behavior over the last decade, its suppression of dissent, its support for terrorists, and its conflict with the West, have increased in conjunction with its oil revenues, which soared by 30 percent in 2005.

Sometimes observers comfort themselves with the thought that most U.S. imports come from friendly nations such as Canada and Mexico, rather than from Iran or other problematic countries. But oil is a globally-priced commodity and even if our dollars not going directly to Iran, this does not mean that our staggering consumption of oil is not contributing to the price paid to Iran by other consumers.

Fifth, the threat of climate change has been made worse by inefficient and unclean use of nonrenewable energy. In the long run, this could bring drought, famine, disease, and mass migration, all of which could lead to conflict and instability.

There are no unilateral solutions to climate change. I have urged the Bush administration and my colleagues in Congress, to return to a leadership role on the issue of climate change.

I have advocated the United States must be open to multilateral forums that attempt to achieve global solutions to the problem of greenhouse gases.

Our scientific understanding of climate change has advanced significantly. We have better computer models, more measurements, and more evidence, from the shrinking polar caps to expanding tropical disease zones for plants and humans. That the problem is real and is caused by manmade emissions of greenhouse gases, including carbon dioxide from fossil fuels.

Sixth, our efforts to stem terrorist recruitment and to prevent terrorist cells and training grounds in the developing world are being undercut by the high costs of energy. The economic impact of high oil prices is far more burdensome in developing countries than in the developed world.

Generally, developing countries are more dependent on imported oil, their industries are more energy intensive and they use energy less efficiently.

The United Nations Conference on Trade and Development estimates that non-OPEC developing nations spend 3.5 percent of their GDP, or more, on imported oil, roughly twice the percentage paid in the main OECD countries.

World Bank research shows that a sustained oil-price increase of \$10 per barrel will reduce GDP by an average of 1.47 percent in countries with a per capita income of less than three hundred dollars.

Some of these countries would lose as much as 4 percent of their GDP. This compares to an average loss of less than one-half of one percent of GDP in the OECD countries.

Some nations, such as Nepal and the Democratic Republic of Congo, would experience GDP losses from a sustained \$10 increase in the price of a barrel of oil that are twice the amount of foreign assistance they now receive from the United States.

Even if a nation like Ethiopia, which receives a substantial sum of \$134 million in U.S. assistance, because it is a focus country of the president's AIDS initiative, would see almost all of this offset by a \$10 oil price increase.

Last week, I chaired a Senate Foreign Relations Committee hearing on the nomination of Randall Tobias to be the new administrator for USAID. In this capacity, he would oversee a large share of our foreign assistance budget, which now exceeds \$20 billion per year. This budget is intended to meet our humanitarian goals, but its success is also directly linked to national security. But all of this effort and money, in essence, can be wiped out merely by an increase in the price of energy.

Without a diversification of energy supplies that emphasizes environmentally friendly energy sources that are abundant in most developing countries, the national incomes of energy-poor nations will remain depressed, with negative consequences for stability, development, disease eradication and terrorism.

Now each of these six threats from energy dependence is becoming more acute as time passes. Any of them could be the source of a catastrophe. Any realistic American foreign policy must redeploy diplomatic, military, scientific and economic resources toward solving the energy problem.

The basic dilemma for U.S. energy policy is how can our government speed up the transition to alternative renewable energy sources, so that we can prevent irreparable harm to our nation or the world associated with these threats? And the realist must ask: How can we shape our energy future before it shapes us in disastrous ways?

American energy policy, to date, has suffered from two fundamental flaws.

First, we have let two decades of relatively cheap oil and natural gas deepen our dependency on imports. An approach that focuses on research while ignoring deployment of new fuels will not meet our national security challenge.

The second flaw is that we have lacked a truly comprehensive energy policy with energy security as a strategic goal. American energy policy has been focused on a narrow definition of energy security that strived to ensure sufficient supplies at affordable prices.

This has translated into policies promoting diversification in supplies of oil and natural gas, but with little emphasis on energy alternatives. A policy that relies on a finite resource concentrated in a few countries is doomed to failure. Our long-term security and prosperity require sufficient, affordable, clean, reliable and sustainable energy.

Now a first component of energy security is to ensure sufficient supplies. Our energy intensity per unit of GDP has steadily decreased, but our energy consumption is still projected to increase by more than a third over the next 25 years.

This demand scenario is not inevitable. Public policy can do much more to promote efficiency while still growing the economy. Expanded programs to enhance energy efficiency in appliances, building construction, and industry, are all necessary to keep our energy intensity declining.

One-third of our projects energy growth is in oil, a majority of which we have to import. I have co-sponsored a bipartisan bill with Senators Bayh and Lieberman, and many other senators, that would require federal agencies to implement a plan to reduce U.S. oil consumption by 10 million barrels a day by 2031. The legislation contains many provisions to enhance energy conservation, from tire efficiency to reduced school bus idling, to light-weight materials research.

Automakers have a central role to play in improving our oil efficiency. We are working to close the SUV CAFE standards loophole and to get more hybrids and flex-fuel vehicles on the road. A fleet of hybrid, and future plug-in hybrids, that run on E85, could reduce our oil use by 10 million barrels a day.

The bill I have co-sponsored removes the cap on the number of tax rebates for hybrid vehicles. It also fosters demand by requiring that 30 percent of the government auto fleet be hybrids and advanced diesels. With increased demand for fuel efficient cars, new manufacturing facilities will be built that provide jobs for Americans.

In partnership with the American auto industry, we should provide a set of incentives that gives them the opportunity to regain their strength and save jobs through innovation. This bill offers a 35 percent tax credit for automakers to retool their factories, so that they can make fuel-efficient, advanced technology vehicles.

Affordability of energy supplies also remains a key goal for energy security. Crude oil still hovers around \$60 a barrel and last October's price for natural gas was more than double what it had been in the previous year. These high energy prices increase inflation and inhibit future economic growth.

Elevated oil and natural gas prices do have the benefit of making alternative fuels more competitive. With the end of 20 years of low oil and gas prices, investment in alternative fuels has surged. As more is invested, innovation in technology and production will drive prices down further.

That is why it is so important to get the first cellulosic ethanol facilities up and running.

The president said in his State of the Union Address that he wanted to make cellulosic ethanol, I quote, practical and competitive within six years." End of quote.

In fact, one plant is ready to be built in Idaho now, and many others could be built within the six year timeframe. I have asked the president to make sure that the loan guarantees that Congress authorized for cellulosic ethanol production are in place by this summer.

As alternative fuels become more competitive, oil and gas producers have strong incentive to drop prices to kill competition. Investors need to know that alternative energy initiatives will continue to be competitive. A revenue-neutral \$35 per barrel price floor on oil would provide the security investors need. At this price, alternative fuels like cellulosic ethanol, shale and tar sands oil, and Fischer-Tropsch diesel, could still compete with regular gasoline.

Many analysts say that expensive oil is here to stay, but most energy investors are hesitant still to take on that risk. A modest price floor for oil that we may never reach would provide a major stimulation for energy alternatives.

Long-term energy security also requires the use of clean energy, a third component of energy security. As long as we continue to consume fuels that do not burn cleanly, or cannot have their damaging gases sequestered, we will continue to pay environmental costs and will remain vulnerable to a climate change-induced disaster.

The Congress must pass legislation establishing a cap and trade mechanism. A cap and trade system would provide regulatory certainty, reward innovation to improve energy efficiency, and provide strong market incentives for clean renewable fuels. Any such system should give credit for carbon sequestration in coal-fired plants and allow farmers and foresters to sell credits for the carbon they sequester.

I have introduced a resolution that calls for America to lead other nations to new agreements under the United Nations Framework Convention on Climate

Change. Thanks to new technology, we can control many greenhouse gases with proactive, pro-growth solutions, not simply draconian limitations on economic activity.

Industry and government alike recognize that progress on climate change can go hand in hand with progress on energy security, air pollution, and technology development.

Even as we strive to reduce the prevalence of fossil fuel in our energy portfolio, pragmatism requires that we diversify to the greatest extent possible our sources of oil and natural gas. I have supported opening ANWR for exploration. While we continue to debate production there and on the outer continental shelf, we have to carefully consider both the security and economic benefits of more exploration, as well as the environmental costs.

We must also ensure that we are not wasting fossil fuel resources in end-use that could be fueled by other means. I am encouraged by DuPont's commitment to replacing petrochemicals with bio alternatives. This wise business choice leaves DuPont less vulnerable to price spikes than competitors who still rely exclusively on oil and gas.

With natural gas prices high, there is now a shift to coal-fired electrical generation. New plants should favor coal, which we have in abundance, over natural gas. I continue to vigorously support the deployment of clean coal technology with carbon sequestration.

We can also use coal to reduce our oil dependence. The energy bill included legislation I coauthored with Senator Obama, authorizing \$85 million for

federal research into the production of coal-based transportation fuels. One of the technologies that will be encouraged by this program, the Fischer-Tropsch process, yields a diesel fuel that is compatible with existing vehicle technology. It is superior to oil-derived fuel with respect to performance and emissions.

Another critical component of reliability is protection of the physical infrastructure and transit of our energy supplies. Terrorists have made clear their intentions to destroy refineries and pipelines worldwide. At home, in addition to power plants, ports, refineries and platforms, we have 160,000 miles of oil pipelines. As the United States considers liquefied natural gas and nuclear facilities, we must be vigilant on the security implications.

While diversity in supplies at home and abroad is necessary for more reliable energy in coming decades, diversification of sources for oil and gas is an outdated strategy that will never bring energy security. Reserves are too concentrated and infrastructure too vulnerable. Real diversity can only be achieved by an energy portfolio dominated by sustainable energy, the final component of energy security.

Now as we make policy to influence the composition of our future energy portfolio, we should strive to consume fewer hydrocarbons than we can produce domestically. This means more clean coal and renewable fuels of all types. I am encouraged that some states and municipalities are taking the initiative to increase their use of renewables. With Congressman Pete Visclosky of Indiana, I am advocating a bill that will do that for my home state of Indiana.

Our policies should be targeted to replace hydrocarbons with carbohydrates. Obviously this is not a short-term proposition, but we can offset a significant portion of demand for oil by giving American consumers a real choice of automotive fuel. We must end oil's near monopoly on the transportation sector, which accounts for 60 percent of American oil consumption.

I believe that biofuels, combined with hybrid and other technologies, can begin to move us away from our extreme dependence on oil in the next decade. Corn-based ethanol is already providing many Midwesterners with a lower-cost fuel option.

Most of this is in a 10 percent ethanol mix which is fully compatible with nearly all vehicles. I have recently called for my home state of Indiana to mandate that all gas stations in the state offer a 10 percent blend.

Cellulosic ethanol, which is made of more abundant and less expensive biomass, is poised for commercial take-off. I am pleased the president now supports the ethanol research that began under legislation I offered in the Agriculture Committee in 2000-

I have long championed a renewable fuels standard, and we finally passed a 7.5 billion gallon ethanol mandate in the 2005 energy bill. The bill I am co-sponsoring with Senators Bayh and Lieberman, and other senators, will increase the proportion of ethanol from cellulose that will be in that mix.

As our domestic ethanol industry strengthens and demand grows, we will have to revisit the tariff we put on ethanol imports.

We do not want to trade oil important dependency for biofuel import dependency, but trade in alternative energy also creates jobs, provides new markets for our advanced technology, and diversifies our own supply. In the end, I believe the United States is well-positioned to produce ethanol at competitive rates.

WE have to make sure that consumers have access to E85 ethanol. Already there are millions of E85-capable vehicles on the road. I have introduced legislation that would require manufacturers to install flexible-fuel technology in all new cars in the next ten years.

This is an easy and cheap modification, which allows vehicles to run on a mixture of 85 percent ethanol and 15 percent gasoline, and will make their products more attractive to consumers.

Next we have to make sure that consumers can buy the E85 fuel. I am pleased that many independent gas stations owners are taking advantage of the tax credit for E85 pump installation that we passed in the energy bill.

I have co-sponsored legislation that would back loans for even more E85 pumps. T he next challenge is to get E85 distributed through the big gas station chains.

I have asked the oil majors about this and they have said that sufficient demand for E85 does not exist. But demand will not develop for something consumers do not have an option to buy, and it is time for the oil companies to make E85 available to their consumers. If these companies do not take advantage of the incentives con has provided, I would be in favor of legislation mandating that they install E85 pumps in appropriate markets.

There is still more work to be done to tilt our energy balance toward alternative fuels. That is why Senator Obama and I will soon introduce a new bill that will promote other means to move these fuels into additional markets and make them widely available.

Among many provisions, the Obama-Lugar bill would create an alternative diesel standard, comparable to the renewable fuels standard that I helped put into the 2005 energy bill.

It would also provide a new incentive for the production of flexible-fuel vehicles. We believe that U.S. national security will be served by more robust coordination of all the elements that contribute to energy security. Consequently, the bill also would establish the post of director of energy security, who would answer directly to the President of the United States.

As we pursue energy security at home, we must seek energy partnerships abroad. This week I will introduce framework legislation that calls for a realignment of our diplomatic priorities to meet energy security challenges. Partnerships with foreign governments can help speed our conversion to real energy security, rebalance power in geopolitics, and open new markets for fuel technologies.

The "Energy Diplomacy and Security Act" calls upon the Federal Government to expand international cooperation on energy issues.

This bill will enhance international preparedness for major disruptions in oil supplies. A particular priority is to offer a formal coordination agreement with China and India as they develop strategic petroleum reserves. And this will help draw

them into the international system, providing supply reassurance, and thereby reducing potential for conflict.

The bill would also stimulate regional partnerships in the Western Hemisphere. Most of our oil, and virtually all of our gas imports, come from this hemisphere. The bill creates a Western Hemisphere Energy Forum modeled on the APEC energy working group. This would provide a badly-needed mechanism for hemispheric energy cooperation and consultation.

And finally, the bill calls for international partnerships with both energy producers and consumers. In addition to seeking new avenues of cooperation, the bill is intended to give focus to existing bilateral energy dialogues, which have lacked clear objectives and political backing.

We must engage major oil and natural gas producers. We should advocate more transparency, improved investment climates, and greater infrastructure security. Oil exporting states wield power for which we must account. Not working with these states will lead to unproductive political showdowns and conflict. Even in challenging relations, such as Venezuela and Russia, we must explore how to improve our energy dialogue.

Strategic energy partnerships with other major consuming countries are critical for our national security. Energy security is a priority we hold in common with other import-dependent countries, which constitute 85 percent of the world's population. Strategic partnership for energy security with the world's largest consumers will increase leverage in relation to petro-states.

In November, I introduced Senate bill 1950, a bill that specifically targets India for enhanced cooperation on alternative energy sources such as clean coal technology and biofuels.

Now to close, I would like to express optimism for the future. Our current energy balance is the result of industrial and consumption choices of the past. Despite our import dependence today, the U.S. is in a strong position to choose a different path, a path toward real energy security.

Success would free future generations of Americans from the energy dilemma that threatens to compromise our security and our prosperity. It could also lead to opportunities in many new industries that could reinvigorate our economy. These are problems that can be solved. We must act now and we must act together. I thank you very much.

[Applause]

MR. PASCUAL: Senator Lugar, thank you very much for giving an extraordinary address. One of the things that you really did was help us frame the importance of energy security to the entire globe and to us here at home, and by starting out by presenting energy security as an issue which is changing the world and forcing change in behavior, I think you really set the right tone, and it really presents us with a challenge.

We can either be like a rock on the shore which is battered and consistently hit by those changing forces, or we can actually be part of a process of affecting that process of change.

And one of the things that you very rightly do is you underscore the importance of leadership to get that done.

We really have to create a new paradigm that helps us see what the world can be, how it can change, rather than simply accepting the paradigms that currently exist.

And I think it's important to put this in context as well, Senator, and the work that you have done on nonproliferation, and as I've mentioned before, not very many people can look at fields of SS18s and SS24s and have the vision that they could be covered with sunflowers.

But, indeed, that was your vision and one that you put forward to the international community and one which exists today. And so it can happen. If it can happen on something which at one time so fundamentally defined the international security parameters of the world, this is something which is just as central to our security and I think you make a very compelling case for that.

In your presentation, Senator, you highlighted a number of points, but there are a couple that are striking, that I would, if I could, just repeat.

One is that the United States will import \$320 billion worth of oil this year.

The second is that most oil comes from places that, or is found in places that are vulnerable to political upheaval and terrorism.

And a third is that most suppliers do not respect market forces.

There's no way that one can construe that picture and see it as something which is favorable to U.S. international security, as well as global security, and I think that you lay out a combination of very important measures, from the long term, on how to reduce dependence, how to increase supply, how to think about changes in regime, and then there are critical short-term issues.

Since the speech focused on many of the long-term questions, let me bring in the first question attention back to the very short-term crucial issue that could really affect our ability to effectively grapple with some of the longer-term questions and this is an issue related to Iran.

Indeed, it's an issue that isn't as nuclear but it affects as well, directly and indirectly, the development of oil and gas. It affects the demand for oil and gas and some of the key actors, some of the new powers in the world. It affects proliferation issues. It affects regional security questions.

I think everybody is, certainly in this audience, and most members of the international community have concerns about Iran getting access to a nuclear weapon.

Today, we mark a point in time where diplomacy will shift to the U.N. Security Council. That is an important development but it's also a shaky one. It was made possible as a result of very creative and effective diplomacy but it's a shaky diplomacy, especially given some of the interests of China, India and Japan to continue imports from Iran and investment in Iraq.

India, in particular, given developments over the past few weeks, is in a very unique situation here because of its own nuclear interests and ambitions.

And of course there is the prospect we also have to keep in mind of what happens if Iran seeks to retaliate against the international community and the negative role that it can play in Iraq and Lebanon and the Palestinian territory.

So, in effect, an issue which really demonstrates the interconnections of the oil and gas issues, the nuclear issues, the international security questions, and where I'm coming is I think pretty clear by now, which this is a tremendous problem, it's a huge conundrum and one which you've spent a lot of time thinking about, and getting briefings on.

What's your advice, at this point, on how the United States can most effectively play on an issue which is, indeed, so complicated and so important, and can also influence the future development of a more rational international oil and gas policy?

SENATOR LUGAR: Well, I think everyone in Washington, probably around the world, is looking at the Security Council and trying to think through how we might have a better diplomatic outlook with Iran, and I'm not going to be able to forecast how that will come out or precisely what all the parties will do.

On the energy side of it, very clearly, as economic sanctions are mentioned, either way, one economic sanction that has been mentioned is that the United States and other countries might discourage the export to Iran of refined oil, which is required for automobiles in Iran. It's a similar predicament that we have found in our hearings in Iraq.

It came as a surprise that maybe as much as \$4 billion of refined oil will be imported by Iraq this year, to keep automobiles going in Baghdad and elsewhere, simply because the amount of refined oil is not in the country, despite its production.

So this could disturb at least drivers in Iran, create maybe some feelings with the elite, if these are the people who own the cars. I'm not certain how far the incidence of ownership lies [?].

The Iranians, not to be outdone, have explicitly, in the last week, indicated that they would simply stop exports of oil to various countries, and most people say out of common sense, Well, how can this be? Oil sells for \$60 a barrel in the world community, a huge sum of money. Surely, no government would deprive itself of that kind of opportunity.

But I think others have pointed out that the Iranian government, anticipating a crisis, has been accumulating funds. The funds from the oil that Iran is selling are not flourishing [?] around the communities of Iran with the people. They're sequestered in a very specific way by the state.

So that in the event that for a period of time Iran shut off oil supplies to the United States, or anybody else, for that matter, why, it could have a savings account to draw upon for potentially an indefinite period of time.

I think that's not well-recognized. The fact is that over the course of time, we have, through our energy policy, allowed not only Iran but other states to gain a degree of vulnerability through international sanctions, and we have, at the same time, obtained a much greater vulnerability to what they could do in that respect.

I mention all this with the hope that none of it will come to pass, but I would say we've had sanctions on Iran as a country for some time, without particular effect.

So some would suggest that perhaps we should have been more engaged with either the leadership or some elements of the people.

I've been a party to conversation with students who have gone in, American students, into Iran, visited with Iranian students, gained a pretty good insight of how the young people feel, and by and large, they have the same reports, namely, the young people are not going to create a revolution. They have their own lifestyles, they live underneath the radar of the mullahs, they know the mullahs, eventually, as old people, will die off, but at the same time, not in the next couple of years during this particular crisis. So we're between "a rock and a hard place" when it comes to the Iranian situation.

This is what leads to sort of dire thoughts that no option is off the table, and whoever says this is pressed—Does that even mean military action? Well, you know, use your imagination, and no option off the table. But then people go into discussion of specific military actions, and all of these are found to have enormous problems, aside from the point that they make a very, very visible impact but invite retaliation at a time that we have a good number of vulnerabilities, with American forces deployed in nearby countries and elsewhere.

My own thought about this is simply that all the policy we're discussing today is unlikely to affect Iraq, or Iran, for that matter, in the short run, but

nevertheless, the mastering of the political will to make these sorts of changes would be somewhat impressive and totally unexpected.

You know, for the moment we are still jabbering around at the fringes of these issues. As far as I can tell, the majority of people in America understand we've got a problem here and generally applaud the fact that somebody's thinking about it, has some vision, and so forth.

But this is not a consolidated action, and it seems to me this is why I look to the president, and I am encouraged that he is prepared to take some leadership, and so therefore, if the president turns to me or others and says, okay, what should we do? I've tediously offered all sorts of legislative ideas today. Some bills that have been introduced, some have been passed, some that are out there, so that we can help our president and we can help others try to frame these issues.

And may say, well, we don't like that idea; at least we're going to have an argument about it. We begin to show as a people, that we sort of understand where we are.

In the meanwhile, I think we will just need very good fortune with regard to the Iranian situation. I would just say, having had a great hearing, we saw in Foreign Relations last week—I unfortunately, come to the conclusion that possession by the Iranians of nuclear weapons, given the instability of all of the neighborhood countries and some of the leaders, is really a recipe for catastrophe, all by itself, leaving the energy thing aside. That this is not an option which some sometimes

employ. Sort of live with the bomb. After all, others have bombs and others have weapons and so—

[Start tape side 1B.]

SENATOR LUGAR: [in progress] of these negotiations.

MR. PASCUAL: Senator, thank you.

Let me turn to the audience now and invite you to raise your questions. I will reserve the right of the chair to come back with an additional question, later on.

If, in asking your question, you can first introduce yourself, and try to keep to a question and a limited commentary as much as possible.

MR. PASCUAL: [off-mike] in your remarks you spoke about countries like China and India throwing out energy lifelines, however they could get them.

You also spoke about the legislation you had introduced, the Energy and Diplomatic Partnership Act, where the U.S. can reach agreements with countries like India and China.

Last week, Secretary Rice delivered a draft submission regarding some bill that legislation could be shaped for the agreement on nuclear, civilian nuclear energy that was reached by the president while he was in India.

The expectation by the administration is that there would be some legislation this week.

Do you intend to introduce such legislation and how do you reconcile your fears and advocacy on nonproliferation, because India has not signed the MPT, with the fact that you have mentioned in a lot of your hearings that it is indeed to the U.S.

interest to forge this strategic partnership with India, because of a variety of reasons, everything from shared values to everything else that goes on.

If you could speak to that, I'll appreciate it.

SENATOR LUGAR: Well, you've introduced a very important question all by itself, namely the agreement signed at the time of the visit of the distinguished Indian prime minister last year, and then the furtherance of that during our president's recent visit.

Secretary Rice did come to the Hill. She gave to me, in written form, ideas as to specific legislation already passed by the Congress; that is, statutes that are on the books now that will need to be amended, if India and the United States were to go forward with this partnership.

And furthermore, she is, and along with Secretary Nick Burns, and Bob Joseph, and others, forwarding rationale, reasons, that is, commonly given arguments for and against this, before our debate began, so that we got off with some hearings, and a good start, and having many views presented. I'm not going to offer a definitive one today but I would say that clearly, this agreement that India and the United States have reached touches upon one of the basic points that I made in my speech.

Namely, India has in negotiation now, a multiyear, and multi, multibillion dollar compact with Iran. India is not unique in this respect. China does too. I was not criticizing the Corinthia Hotel meetings. I was simply indicating that's the way the world works. In fact, in Algeria, I found the same thing as I touched upon that, and if I

had gone to almost any African country that has hydrocarbon resources, I would have found a similar situation.

Whether the United States is aware of it or not, other countries in the world are trying to pin down the reserves on the last acre of whatever is left of Libya, Algeria, quite apart from the Middle East, and in some cases it doesn't work, it turns out that the materials that they have to work with, they are not going to work in India or China without great expense. That by and large, this is very competitive and it is not that they're going to begin drilling and exploiting immediately.

But they're going to make sure nobody else does. That it's theirs.

Now under those circumstances India has come to the United States and suggested that it would like, as I understand it, to form a much more vital—and it would have to be a very large vital, nuclear energy for generation of power in India, that might replace a portion of its needs in the ways that I've just described.

That's going to be a very important argument to wrestle with. The nonproliferation treaty is a very important set of circumstances and having devoted much time and energy with many of you in this room along that, I don't take that lightly.

But I'm also taking a look at the realities of the world with regard to energy and the potential conflicts that could occur unless we are thoughtful, diplomatically, and the India proposition offers, it seems to me, a very important avenue.

Now whether India is prepared to invest this kind of money in nuclear energy, and all that that implies, I don't know. That we will be asking—How serious is this? Is this a query that is philosophical, and interesting policy-wise, or does it have very practical implications in this world? And I've touched upon in my speech, diplomacy we could have with India with regard to biofuels and various other alternative energy sources that we really haven't explored with India or China.

We've been busy eyeballing all the problems that are out there but not really diplomatically offering many of the solutions that might lead to more efficient use of energy by those countries.

Now some Americans say, What goes on here? Why should we help another country become more efficient in its use of energy and therefore perhaps lower cost to competitors in manufacturing or services, or what have you? Once again, an interesting question to weigh.

I've come down on the side, if we're serious, that the energy propositions I've given today are absolutely vital to a continuation of world peace and prosperity. We finally err, if we have to, on that side.

But that's about the best that I can do for a moment. We'll have, not exhaustive hearings, many hearings, and ultimately, specifically, what has to happen in our Congress is the revision of certain laws we have on the books.

This is not going to be a new treaty with India. It does not have all the provisions that come with that type of thing, but it would change policy, and in the nonproliferation area, that's a serious issue.

MR. PASCUAL: It's an interesting point that you make, though, Senator, that as we engage on this debate with India, and on the next steps with India, that it's important for us to keep it in the context of what India is doing for its own long-term energy security—

SENATOR LUGAR: Exactly.

MR. PASCUAL: —and what we're doing for our long-term energy security, because otherwise we may be making short-term decisions that aren't put in a longer-term context that necessarily make sense.

This side of the room. Over here. Please.

MR. COLLINI [ph]: Senator, Thank you very much for your very helpful remarks. I'm Tom Collini with 20/20 Vision here in Washington. Just as an aside, we'll be sponsoring a series of conferences in April on energy security, including one in your home state, so I'll soon be making my first visit to Indiana, so I'm very much looking forward to it.

SENATOR LUGAR: Thank you.

MR. COLLINI: If you could answer, or talk a little bit more about E85, and how to build up a supply and a demand, cause as you said, it's a question of both, and we obviously can't have demand until there are pumps out there for people to buy the fuel, and of course, as you said, one of the issues there is how to get the oil companies to put in a fuel that, you know, by many analysts' analyses, is counter to their interests.

So, again, if you could talk a little bit about the supply and demand side, both, of E85. Thank you.

SENATOR LUGAR: E85, as I explained just briefly in my speech, is fuel for cars that is 85 percent ethanol and 15 percent petroleum. That's the E85 idea. And some would see this as a short-term fix because, by and large, the enthusiasm for this has been in the Midwest where there is corn-based ethanol being produced, now substantial amounts, and therefore the 85 percent of the ethanol comes from these refineries that are using corn as the base for the ethanol.

Some have made the point that corn is an expensive stock and that something else that doesn't impinge upon feed, or is less expensive, be better, cellulosic ethanol is perceived as where we ought to be heading, and I indicated this has got to be something less than a six year process, as the president, I indicate, the Idaho plant is a potential, this summer at least, to begin construction, and some other things of that sort.

But for the moment, E85 is out there, and it's very new. In my home state, Indiana, we're behind the trail; I went out to Terre Haute, Indiana, on the 4th of July, for a celebration marking the very first E85 pump in the whole state.

The mayor was there. So were 200 citizens. It was an extraordinary thing, all around a gasoline tank, next to other tanks. The E85 one was labeled with a price that was about 50 cents less than those on the other tanks.

There was a Speedway car there, and the Indianapolis Speedway pledged to use E85, and ethanol, and so forth, gave it a popular feel.

Now at the same time, the most significant comment was a Ford dealer who was on the premises, and he said we're going to have cars on our lot within the next few months, that can use this.

And I said, well, I would like for you to step right up to the microphone and make that announcement to your citizens. This is so rudimentary, and I express the primitive nature of it simply because probably, in all of Indiana right now, there are less than 100,000 vehicles that can use E85 fuel. And they are scattered about.

So if you were thinking about putting up one of these tanks, you are probably, if not a "mom and pop" store, something that is a fairly low income retail affair, it's a risk.

Now suddenly, you're hit by an article such as occurred in USA Today, which is quite accurate. It's not accurate for Indiana but was for the United States. That suddenly, the price of gasoline at the E85 pump is higher than the ones next to it.

And you say, well, how can this be? The whole idea was that it was lower and that's why people would be attracted to this.

Well, it can be because many people in California and other Western states, having discovered they don't want MTBE as an oxygenate, have decided, as a matter of fact, they may be facing law suits, and in a panic, are buying up all the ethanol in the Midwest to ship out to California to substitute for MTBE.

You say life is unfair; we're just trying to solve one problem at a time. It's hard enough to get these stations up, to get the refining capacity going that could

supply them, to get the cars that finally can use them, although as I said it's a very modest fix, and many cars have discovered they have that capability.

It came as a compromise with the car industry a while back in one of our disputes, that they gave E85 capacity, or flex-fuel, more accurately, to cars, and nobody knew about it, but now, many people are discovering they do have these cars and they are now being sold at Ford Motor Company and General Motors, both full-page ads, that they've pledged 250,000 of these, both companies, to be produced this year. You know, why not 300,000? 500,000?

The bill, I've said, you know, every car by the end of the next ten years has got to have this capability, which is not unreasonable.

But in any event, we now have 27 in Indiana, getting back to our parochial spot. Now some of those have been losing money because of this surge in California.

So there are stalwart folk who go around encouraging, saying don't lose the faith, that there will be two more ethanol plants that come and begin to actually ship ethanol in September, in Indiana. We've had only one in South Bend since 1983. Two more in September and there'll be four more in the next year after that.

But even then, you know, here is the new argument that I come from the Ag Committee with. Fourteen percent of our corn, last year in Indiana, was used for ethanol. People say 14 percent? One-seventh of the entire crop? As a matter of fact, we are now exporting, as a nation, less corn than we are putting into E85, into ethanol, and that will be 20 percent of the crop by the end of this year and it could go onward and upward, which leads to other issues.

The poultry feeders. You're driving the price of chicken feed up because you're using all of this corn for ethanol. On and on and on. This was never supposed to be simple. That is why the need for national coordination of all of these things is simply imperative. Some of us [inaud.] my staff, are trying to help out in Indiana, holding hands, while enough ethanol is produced that can get to the station, keep the stations open, so they will still have the pump there, and try to "jawbone" the oil companies to "come off of it" and help us out, don't be difficult, you really have an opportunity for statesmanship here, and so we'll keep at that, too, maybe with some progress, with some of the more progressive.

MR. PASCUAL: David, did you have a question?

MR. SANDALOW: David Sandalow from the Brookings Institution. Senator, one of the most innovative parts of your speech was a proposal for a price floor for alternative fuels, and maybe for oil itself, and I wondered if you'd elaborate on the rationale for that proposal and how it would work.

SENATOR LUGAR: Well, I'm not certain I can describe all the mechanics of how it works. The intent is to keep a \$35 floor, and I think that is doable. It comes from a roundtable that a group called SAFE, S-A-F-E, held in Washington a couple of weeks ago, and in which I participated. So did Senator Lieberman, and Bayh, that I've mentioned, other senators.

But essentially the people around the table were CEOs of large industries in America.

Fred Smith from Federal Express was there, for example. People that have fleets of cars that have great use. And they simply, without naming names, indicated that as they had approached oil company suppliers—after all, they're big enough to talk to the CEOs of oil companies—there had been a hint that if they became too obstreperous, why, the oil companies just might, during various times where there were lulls in world affairs, reduce the price of gasoline sufficiently to scare everybody off of these deals again, so that then we go full circle.

The fear always has been that, essentially, you couldn't count on the price being that high. Therefore, the kinds of investments that we're talking about would be unjustified in the long run. That the price of energy worldwide is a mercurial sort of thing, goes up and down, through wide swings, and some would say, historically, that's what happened after the scare in the '70s.

That for a while, while you had gyrations of prices, then it tailed off, sort of came on down, people forgot all about their conservation business, but oil companies, likewise, forgot all about the thought of long-term investments in these situations, and why not simply wait for it to spike again.

Now I suppose my own view, but this is simply a curbstone opinion, hardly a good investment guru, is that we're unlikely to see oil going down to \$35 a barrel again. It's conceivable and if somebody made a deliberate attempt to do that, at a loss of considerable revenue, almost like the Iranian government deciding to kick away money, why, you could probably do this to scare folk off. But I don't think it'll get to thirty-five.

On the other hand, having participated in this roundtable, with people from the energy business as well as consumers of it, I was convinced that that is probably a floor that is not going to be reached but does offer, if you're a long-term investor, the confidence to proceed with things that you ought to be doing.

So what I'll attempt to do with my economist friends, and those who are at least in the regulatory situation, is become more explicit as to how you maintain 35, if you have to, but at the same time, the purpose of this is a confidence builder, so that the huge changes that I've advocated in the speech have some hope of coming about, as opposed to people looking over their shoulder and sort of waiting to be zapped by oil at \$20 a barrel.

MR. PASCUAL: On the side. Please.

MR. : Senator, my name is Lidium Gorbashem [??]. I'm an independent analyst. My question is about the problem of accelerating global deforestation, and what possible policy solutions do you [inaudible] and do you think it requires leadership at this point?

SENATOR LUGAR: I'm sorry, I didn't catch the problem. If you could repeat yourself.

MR. : Okay; sorry. My question is about the accelerating global deforestation.

SENATOR LUGAR: Deforestation?

MR. : Deforestation.

SENATOR LUGAR: Okay.

MR. : And what possible policy solutions do you see in this area, and whether it requires, you know, leadership at this point. Thanks.

SENATOR LUGAR: Well, this is an important issue all by itself, leaving aside the energy context today. Obviously our national policy ought to be working with other countries to maintain their forests, and that has been our policy, and we've had, as a matter of fact, sizeable grants to other countries to maintain their rain forests, maintain other vulnerable situations.

I would just simply say that as a practical matter, countries that are in times of war, panic, difficulty, frequently chop down their forests. People use the trees before the freeze, and so as a result, there are large sections of the Earth that have been visited with horrible events.

Now there are some times, that there are arguments over development in various countries, in Brazil, for example, it comes to mind, we've had many discussions before our committee of what has happened to certain forests there and what should have been happened, and who is doing it, and so forth.

In a proactive way, it seems to me that in this country we have had policies, in recent years, that led to more tree-planting and to more forests.

Now I would just say this is a very minor issue in comparison to the whole thing you're suggesting, but I've been intrigued, just as a farm owner, and one who has been planting a lot of trees for a while, with the thought that possibly there might be a stimulus for fellow farmers who have ten, twenty, even a 100 acres that's being unused, to plant good hardwood trees, that probably will be good for the future of Indiana

hardwood industries, sixty or seventy years down the trail, if you're planting black walnut or a hardwood tree.

But it certainly would be a good thing in terms of the environment in the meanwhile, and to try to work our formulas where farmers who pledge to keep their black walnuts there for 50 years, or so, receive credits for carbon sequestration.

This is not as far-fetched as it seems; at least in the Chicago Board of Trade, they're attempting to work out many principles as to how this might happen with trees but maybe even with other growing plants.

But that's strictly our problem. That is a United States problem of trying to think through how we get more tree growing for several benefits. But one of them may be with regard to clean air. Maybe other countries have that consideration too.

My impression is that most other countries, questions are much tougher economic ones, or simply privation because of very large catastrophes.

MR. PASCUAL: Senator, there are many questions still on the floor. We're coming close to the end of the time that we had and I want to be respectful of that. So I'm going to take back the floor a second and be so bold as to pose another question which is slightly broader but I think is appropriate for this audience, and one which is of great concern to the international community, and taps on your role as the chairman of the Senate Foreign Relations Committee.

We're living in a world right now and in an American environment where the threat of xenophobia could potentially make it much more difficult to tackle all of these issues. There are difficult policy questions that were posed by the Dubai port

deal but beyond those difficult policy questions, it demonstrated other instincts in our society.

There's a threat that that xenophobia could become more complicated as the situation in Iraq continues, if there's not a prospect for some sort of a constructive solution.

You've highlighted a whole series of issues in the energy sector that, in fact, can—that demand for international engagement but at the very same time, in some ways, create almost a fear of what that international community might do, what that world might do.

From your perspective in the Senate, and having been a champion of engagement throughout your career, are there some words that you might leave us with, underscoring the importance of international engagement, how you see the prospect of the threat of xenophobia right now, and what kinds of things should we be considering to ensure that we continue to advocate responsible international engagement?

SENATOR LUGAR: Let me just state, and you'll have to forgive all of my parochial references, but the Dubai port issue we were having out here in Washington was occurring at the same time that we have a legislative issue in Indiana, that is certainly much less cosmic, but it comes down to the fact that an Australian firm had been sought by our governor, Mitch Daniels, to purchase a lease at 75 years on the toll road in the northern part of the state.

In return for the 75 year lease to the Australians, Indiana would receive \$3.8 billion in cash up front, a once-in-a-lifetime opportunity to build roads, bridges, deferred maintenance, in almost every direction, all over the state.

Now to say the least, on paper, this appears to be a no-brainer. But, in reality, it is very difficult, for the same reasons you have brought up. You say Australia, xenophobia with regard to Australia? You bet! Amendments in the legislature to put American flags at each toll booth. And very impassioned speeches about Hoosier soil being occupied by foreigners for 75 years of time.

There's some more pragmatically worried about how much money to the north as opposed to the south of the state, whether the I-69 extension should happen at all, and if so, whether it should be a toll road. But nevertheless, sort of head on, a real problem here, which many people at this particular time—now it's not new, and this has been, for those of us involved in the Foreign Relations Committee for quite a while, an undercurrent that we have noted, without really trying to draw attention to—there is a greater degree of isolationism and protectionism in our country, that arises sometimes in very strange times, but nevertheless, it's there. It's to be preyed upon.

Now folks will have to get over it. The things I've outlined today are impossible to even consider, quite apart to solve, without there being extraordinary international diplomacy, a reaching out—I've even suggested to the Chinese, to the Indians, to the Russians, to other people, how we're all going to deal, as a matter of fact, with these problems in the world, without having conflict down the road.

We're talking about war and peace, and we're talking about nations striving to provide the basics for their populations at a time when the cost of all of this goes through the ceiling and the availability of all of it.

Now we got a taste of this in January, and I don't want to exploit that problem anymore, it's been solved, temporarily, between Russia and Ukraine.

But just as an answer to this, when I visit with folks in Indiana, I really illustrate the importance of our international relations by pointing out that I went over to Ukraine for the November 21 election in 2004, because President Bush asked me to do so in the last few days before the election, to carry a letter to President Kuchma, which asked President Kuchma to have a free and fair election, but indicated there would be consequences if he didn't.

Well, I don't know how President Kuchma felt about the letter. His son-in-law asked me, after the election was over, to appear on Ukraine television and make a report to the people, which was a generous offer, because the son-in-law said, What are the consequences? Are they perhaps my passport being taken up, or various other things of this sort, that got his attention?

But nevertheless, the election in November didn't turn out very well, lots of fraud and abuse, there was a final election in which President Yushchenko, debilitated by dioxin poisoning, and so forth, came to the presidency. I went back this past August to see President Yushchenko, by now a dear old friend from common battles. Ms. Tymoshenko, who was to be displaced as the prime minister, but who was in power at the time. Then Speaker Lytvyn, who had come over to visit with me during

the crisis. And each one of them took me aside and said, now, we don't know how to put this, but around the first of January, it's very likely Russia is going to demand a very accelerated, very high price for natural gas. It's going to come in the dead of winter and we're going to have a lot of cold, vulnerable old people, quite apart from industries that are getting going but still don't have a whole lot of zip. That, in essence, this could be devastating.

So they go to the map and point out lines that go to Turkmenistan, or to lots of places, and maybe in the form of some time. But not between September and January.

But in any event, I mentioned these conversations to a few people and they dismissed these as hysteria. But come three days before January the 1st, indeed, the demand was made for \$220 for the same units that Ukraine was paying \$55 for in terms of natural gas.

And Yushchenko objected. He has a difficult political problem, elections coming up in a few days, as a matter of fact, he was thinking about even then. And the Russians, in some cases—I don't want to overstate it—literally turned off the gas.

Now that even Yushchenko and his cohorts felt was impossible. That would be literally an act of war, to do this. But it happened, and as I mentioned this mildly in my speech, there were no aircraft flying over Ukraine, no troops marching through there, not the normal aspects of invasions. But you could kill a country, just as effectively, by turning off the gas, if there is that vulnerability.

And that we haven't quite encompassed yet, you know, whether we're Hoosiers back in Indiana worrying about the Australians, or anywhere, that we are in a very, very tough predicament, and we ought to take it seriously, as opposed to all the xenophobia of the past.

Now as a matter of fact, in this particular instance, the Russians said it would be an act of war if Ukraine stole gas. Well, Ukraine stole gas rather than freezing, and very rapidly, we heard the president of Poland, when he came through here, he indicated the pressure was going down, and when I saw the Russian foreign minister, Mr. Lavarov last week, he said, well, that's not true. We were putting more gas through there 'cause we knew the Ukrainians were stealing some; so we were putting more through there, to keep up the pressure. All of this going on out there.

This is aggression. This is energy warfare. The Poles and the Germans were quite impatient. They said what a heck of a way to start the G8 leadership, by shutting off the gas for all of us.

Here are the Germans, 40 percent dependent upon Russia for their gas supply. A very, very tough predicament. The second largest supplier to all of Europe, Algeria, interestingly enough. Now Algerians were constant throughout the problem, but now they're passed, altogether. All this is a long answer but I would just say simply, some of us have got to really speak out in terms that people understand. Most people understand the Ukraine situation.

Now what is going to happen in Ukraine is hard to tell. Six months deal. \$95 for the gas as opposed to 220, or 55, as it was before.

Interesting enough, as I understand it, Belarus cut to forty-seven.

Anybody saying that the market's worth the supply and demand involved here is crazy. If you go over to our CIA, without revealing a single bit of classified information, they will confirm my figure, but a large majority of the resources here are controlled by states. There's no market forces here. There are no multinational oil companies.

It means that if you are a president or a dictator, or what have you, you can cut off the gas, and you may decide to do that because it fits your national pattern.

But that is a degree of vulnerability we have not encompassed in this country. Now we better, we've had an illustration of it in the world, rather dramatically this year, up front, with everybody testifying from their standpoint.

But this won't get us past the dispute on the Dubai ports. But there are a lot of other issues, I know. If my colleagues were here, they would say, well, it's a question, you can't have a secret little group doing things, and the president should have been better informed, Congress should have been better informed, have a better procedure for explaining all these things to the American people. I buy all of the above. I think it would all be useful to explain a lot of things to the American people, to get all of the facts out there.

So we probably will make some reforms, so that we are not blindsided, maybe as a nation, quite apart from the Congress again.

MR. PASCUAL: Senator, we thank you very much and on this 90th anniversary of the Brookings Institution, you really have set us really looking at what is today's track of thinking about international security issues, that it's not just the

traditional questions, but how energy issues, domestic issues, international security questions, prosperity, are all intertwined, one another.

Could not have been a better discussion to kick us off in this process.

Thank you very much.

SENATOR LUGAR: Thank you.

[END OF TAPED RECORDING.]

- - -