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FEDERAL TRADE COMMISSION

ENERGY MARKETS IN THE 21st CENTURY
COMPETITION POLICY IN PERSPECTIVE
SESSION 3

THURSDAY, APRIL 12, 2007

FEDERAL TRADE COMMISSION
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P R O C E E D I N G S

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3 MR. SEESEL: Good morning, everyone, and welcome
4 to the third and final day of the Federal Trade
5 Commission's Conference on Energy Markets in the 21st
6 Century: Competition Policy in Perspective. I'm John
7 Seesel, the FTC's Associate General Counsel for Energy,
8 and I want to welcome our audience here at the FTC
9 Conference Center in Washington as well as everyone
10 watching the conference on our webcast.

11 We will have two panels this morning that I know
12 will discuss issues of great importance to the United
13 States and world economies. Our first panel this
14 morning will address the current implications of the
15 world energy situation for United States energy
16 supplies.

17 I am especially pleased and honored to introduce
18 the moderator for this panel, who also happens to have
19 been my former boss here at the FTC, Orson Swindle, a
20 Federal Trade Commissioner from 1997 to 2005 and now a
21 Senior Policy Advisor and Chair of Security Initiatives
22 at The Center for Information Policy Leadership at the
23 law firm Hunton & Williams, and I will turn the podium
24 over to Orson, and he will introduce the panelists.

25 MR. SWINDLE: Thank you very much, John.

1 Several years ago, John and I were looking at
2 one of the oil merger cases -- by the way, I am always
3 amazed at how the FTC attracts Baptists, and I grew up
4 in a small south Georgia town, and the Baptists go to
5 church, and they all sit in the back of the room. None
6 will sit in front of the pastors, because they are all
7 asking for money, but I am not asking for money today.
8 So, if you like, come in a little closer. We also have
9 it all on video cam or streaming video or whatever it's
10 called.

11 I was telling John, we were discussing several
12 of the oil mergers, and I said, you know, this is going
13 to be a big issue, and when Tim Muris came to be
14 Chairman, I said, "Tim, worry about two things, gasoline
15 prices and privacy," and they did dominate, and so when
16 Chairman Majoras came, sort of the same message, get
17 ready for the spring assault on gasoline prices.

18 A great interest has been taken in the energy
19 field by the Federal Trade Commission, particularly the
20 mergers going on and trying to analyze the market to try
21 to come up with rational reasons that we can understand
22 why certain things happen.

23 This is the third day of what appears, from my
24 looking at the program -- I regret I was not able to be
25 here -- but what appears to have been a very interesting

1 two days of discussions, and today's discussion here
2 will be quite interesting, too, I think. We are looking
3 at rather complex and certainly diverse and many aspects
4 of energy policy: supply, technology, demand, and
5 things of this nature. As we all know, we are
6 enormously dependent upon oil or petroleum, and an awful
7 lot of it, way too much of it, is in the hands of other
8 people, and to take it a step further, some of those
9 other people don't like us very well or the regimes are
10 unstable or the area is unstable. So, it represents
11 quite a threat to us.

12 A war is raging in the Middle East right now.
13 Chaos could be said to be raising if that war is
14 concluded in a poor manner, and I'll leave it to other
15 experts to tell me what the right manner would be. I
16 would suggest that we have not seen the likes of the
17 trials and tribulations that are to come if it does end
18 badly.

19 I am not an expert in petroleum and energy by
20 any stretch of the imagination; however, over the
21 Christmas holidays, I stayed at a Holiday Inn, I want
22 you to know that, and in addition to that, following the
23 lead of former CIA Director Jim Woolsey, I have a Toyota
24 Prius based on the recommendations of some of you here
25 at the Federal Trade Commission, and I can attest to the

1 fact over Christmas, my wife averaged 73 miles an hour
2 going down to Nashville on the highway, and we averaged
3 43 miles per gallon, which is pretty good, you know,
4 that's good.

5 Fortunately, we do have three experts here today
6 to address the morning's lead topic, as John introduced:
7 Mr. Roger Diwan, Admiral Dennis Blair, and Ms. Anne
8 Korin. The three speakers are going to take about 20
9 minutes for their presentations, and I am going to try
10 to be brief with introductions, because they are in the
11 programs, as I understand, and then, if we have any time
12 left over, be thinking of questions that you want to
13 pose, because we have a great opportunity with some very
14 knowledgeable people here.

15 Our lead speaker is Mr. Roger Diwan -- I'll
16 never get that right, Roger, and I'll bet you are called
17 "Roger" an awful lot -- Roger Diwan, who will give us a
18 broad view of the energy situation today and the
19 challenges facing us in a very -- we, the United States,
20 which is a very energy-dependent nation -- the
21 challenges of meeting demand, competition, petroleum
22 supply, how we got into the situation we are in, and
23 what the future may hold in the not-to-distant future.

24 Roger is a partner and head of financial
25 advisers and a member of the PFC Energies Corporate

1 Advisory Practice. I love that term, "PFC." He is
2 responsible for developing PFC's relationship with
3 financial communities and to structure PFC offerings and
4 services to the need of the money managers focused on
5 energy. Prior to joining PFC Energy, Roger was a senior
6 oil analyst with Energy Security Analysis, a market
7 analysis consulting company in Washington, D.C. He is
8 from Lebanon, and it is always a pleasure to meet
9 someone with these kinds of talents. He grew up in
10 Paris, France, and he speaks English, French, Arabic,
11 and Italian.

12 Roger, the podium is yours, and you can, if you
13 would like, speak from the table, or you can come up
14 here, please. I'm looking at the clock here, and it's
15 9:14, so we will say 9:34, and we will adjust
16 accordingly.

17 MR. DIWAN: Thank you. Thank you for the
18 introduction.

19 I wanted today to have a presentation a little
20 bit to show how we got here, to have \$65 oil, and
21 looking forward for high oil prices and what it means,
22 and look a little bit at the energy policies of the
23 United States and what we can make out of it and how
24 that feeds into this issue of energy security since it
25 is a very important theme in this country.

1 To understand how we got back to the high
2 sixties in terms of prices and the higher last summer,
3 we almost reach \$80, we need to look back over the last
4 30 years. This is not a small phenomenon. The oil
5 industry is very capital-intensive. The time to create
6 projects are extremely long. To develop a field in the
7 Gulf of Mexico, for example, from discovery -- from
8 exploration to production, it takes between seven to ten
9 years. So, lead times are extremely important, and we
10 need to go back and look at the history.

11 Think about it. In 1961, when OPEC was created,
12 the whole world was open to the oil companies but two
13 countries really, Russia and Mexico. Through the
14 seventies, we had the whole wave of nationalization, and
15 we had the Iran-Iraq War and the Irani Revolution, which
16 really boosted the price, and we had a massive
17 investment into the energy business, and the price
18 collapse in the mid-eighties has triggered basically a
19 demand shock. Demand went down, and we had a huge
20 amount of surplus capacity, which took 20 years really
21 to work out.

22 During these 20 years, the industry, in general,
23 had very low marginal return, and they did not invest
24 much. Through the end of that period, when we had
25 prices going up, the industry has tremendously changed,

1 has shrunk a lot. You have bigger players, but much
2 smaller industry, if you will, and the rise of the new
3 set of companies that we call the NOCs, the national oil
4 companies. So, we started in 1961 when basically we
5 have the international oil companies, the IOCs -- and I
6 will use a lot of these acronyms -- dominating the
7 business, and right now we are in a phase where the NOCs
8 are in ascendancy and the IOCs are basically wondering
9 what to do next.

10 That's an important phenomenon I'll come back to
11 because it has great implication for our energy
12 security. If the oil is produced by the national
13 companies, do they have the means, the technology, the
14 people to invest to increase supply, or is it still in
15 the hand of the international oil companies?

16 Think about three-four years ago, in early 2003,
17 let's put it this way, January 2003, a number of tipping
18 points have happened since. We had a massive increase
19 in demand in China 2004, and of the magnitude which
20 basically, by itself, wiped out all the excess capacity
21 which was left in the system which has been lingering
22 over the last 20 years. We had oil prices over \$50 for
23 the last three years, and we have basically seen no
24 response on demand or on supply, which is incredible.

25 I mean, we have been used for a world where \$23

1 oil was high oil prices in 2000, and suddenly, we double
2 that and even more, and since we haven't seen the
3 responses both on the demand and on the supply, which is
4 unprecedented, and it tells something about the ability
5 to produce more oil and/or the affordability of oil to
6 the consumers.

7 We also have massive disruptions which further
8 eroded the capacity in the business, and we have ushered
9 a completely new debate, which is extremely important.
10 How much oil do we have and how much can we grow our
11 supply going forward, especially from outside OPEC, and
12 how much oil is available to continue to grow our supply
13 chain?

14 Finally, something which has emerged in the last
15 three years is this industry, which has not invested for
16 the last 20 years, is facing -- it is what I would call
17 almost an anorexic industry, has shrunk, shrunk, shrunk,
18 and unable to grow, because just it does not have the
19 people to grow. We lost more than half of the people in
20 the industry in the last 15 years in the U.S. alone, and
21 one segment of industry in particular, the service
22 sector, which has very poor profitability, has shrunk so
23 much that it is very difficult now to grow again.

24 So, in that sense, when you look at all these
25 systemic changes we have had, I guess we have entered

1 the age of energy insecurity, and we need to deal with
2 it. A number of the issues that I have here on my slide
3 are things which will stay for a long term. We are not
4 going to be able to reverse the trends that have emerged
5 over the last ten years very easily.

6 We have high costs, and they will remain there,
7 and they are very important, and I will talk a little
8 bit about that. We have the rise of the NOCs and the
9 fact that a lot less jurisdictions are open to the oil
10 and gas companies. We have much higher political risk
11 globally, and we have insecurity everywhere, not only
12 physical insecurity, I mean, military security is -- it
13 is on the contracting terms; it is on the ability to
14 move oil; it is on the ability to find the material; and
15 all of that.

16 The industry is entering a very difficult
17 period, and we can imagine from a number of shocks going
18 ahead, the only thing which will dramatically loosen the
19 energy balances going forward is a big economic crisis
20 which reduces demand; otherwise, anything else will add
21 to the tightness in going forward.

22 A lot of people are looking at this industry and
23 saying, well, this industry is doing very well, we have
24 high oil prices, the oil companies are doing very well.
25 Why are they not investing and why are they not bringing

1 more oil? I think this is masking the real issue here.
2 This is an industry that is mostly in crisis, if you
3 think about it, and has been driven by high profit in
4 the last year, and going forward I think the profit is
5 going to be much smaller, because the costs have been
6 rising so fast. So, in a way, the oil prices is masking
7 the crisis.

8 Think of one phenomenon, for example, which is
9 the F&D costs, F&D meaning finding and development
10 costs, how much it costs to find oil and develop it and
11 bring it to the market. It is the blue curve here, and
12 until basically 2003, it cost between \$5 and \$7 to
13 discover and bring oil to the market. Right now it
14 costs over \$20-\$25. This chart is mostly for the eight
15 largest oil and gas companies. For the smaller ones,
16 actually it is significantly higher, but it is around
17 \$20 to find and bring oil to the market. So, this is
18 multiplication by four, and these costs are going to be
19 sticking. It's not a blip.

20 The financial markets know very well how to
21 price that and how to understand these rising costs.
22 There is a very simple formula saying that basically you
23 need three times the F&D cost to have a 10 percent rate
24 of return. So, this is why the oil market is pricing
25 oil at \$60, not because we have a very tight stock

1 situation or because supply/demand is very tight, which
2 it is not. It is the perception that to bring oil to
3 the market, to discover new fields, the new marginal
4 oils coming from here on are going to cost between \$50
5 and \$60 going forward.

6 If you look at the large projects which are
7 started now, this is pretty much what we are pricing,
8 and if you look at the countries who are large producers
9 of oil, Venezuelas, the Nigerias, the Saudia Arabias,
10 they need \$50 in their budget to be able to survive.
11 So, they need also \$50 oil. So, we have here a function
12 of higher oil prices going forward, and the expectation
13 of prices continuing to rise is extremely important,
14 because it is really affecting the cost issue.

15 And the main reason is simple, and nobody really
16 talks about that, is it is not the lack of resources in
17 the world, and I do not believe in the peak oil, but it
18 is the lack of access to resources. Think about it. In
19 1970, the IOCs, international oil companies, had access
20 to 85 percent of world oil. If you look what happened
21 through the time, right now, 65 percent of oil and gas
22 reserves in the world are not accessible to the oil and
23 gas companies. They are in the hands of the national
24 oil companies. Twelve percent of the reserves are into
25 the national oil companies, but they allow access.

1 There is another 16 percent in Russia, and that is
2 debatable if it is open or closed. And really, the
3 international oil companies are competing for 7 percent
4 of the global resources. This is the U.S., the U K,
5 Australia. They are jurisdictions which are open for
6 investments, and this is where most of the investment
7 goes, in a very small sliver of the resources.

8 So, the question is, can we develop the
9 resources in the 65 percent of the world, plus Russia,
10 so 80 percent, in effect, of the world, fast enough for
11 rising energy demand in the world? And that is the
12 large question here, because what you have seen over the
13 last few years, the higher the oil prices go, the less
14 access you get, because the higher the oil prices are,
15 the less need for capital from the IOC exists, and
16 certainly what the IOCs have always said, well, we will
17 bring capital, we will bring technology, and we will
18 bring management, that's a fallacy.

19 Capital, now, everybody has it; technology,
20 actually, the oil companies have abandoned technology
21 over 15 years ago, and they passed it on to the service
22 sector; and management, if you look at all the large oil
23 fields run by the oil companies, they are owned by
24 Schlumberger and Haliburton, so they do not even have
25 the management. So, the question is, why do we need the

1 middle man, and if you do not have the middle man, can
2 these national oil companies develop their reserves fast
3 enough?

4 An interesting phenomenon has been happening
5 also over the last few years. The national oil
6 companies were, if you want, the sleeping beauties of
7 this business. Nobody really cared about them, but they
8 already knew that they had the resources, and over the
9 last three years, as oil prices have increased, the
10 national oil companies have discovered that actually
11 they do not need the middle man, and what you start to
12 see here is a huge amount of deals happening between the
13 NOCs cutting off the middle man, and obviously these
14 companies are not American or European. They are
15 Chinese; they're Arabs; they are Venezuelans; they are
16 Iranians; they're Indians; et cetera.

17 So, you have a new set of companies who have
18 emerged controlling the energy business, very different
19 than what we had ten years ago or even five years ago,
20 and this is tremendous change, and it has to fit in our
21 perception that in the way the energy business is
22 sliding away from the traditional player.

23 That poses a new set of challenges if you think
24 about it. If you look at the non-OPEC supply, so the
25 U.S., the UK, the jurisdictions open, again, to the

1 international oil companies, if you look at all the
2 projects coming on, the reserves, et cetera, it is very
3 difficult to imagine that non-OPEC can continue to grow
4 past 2010, 2015. We just do not have the massive
5 reserves to replace the ones which are declining. We
6 have a set of legacy assets which are declining. We
7 have brought a whole set of new, very large fields over
8 the last few years in deep water, in Brazil and in the
9 United States, and these large fields tend to peak year
10 one in production. After that, they are going straight
11 down.

12 So, what you are doing here, you need to bring
13 huge amount of reserves just to stay flat, and we do not
14 see the ability to find and to develop these reserves.
15 So, it means that the world is going to be more and more
16 dependent, depending on how fast demand grows, on OPEC,
17 on these national oil companies to bring oil supply.

18 When you look at oil demand, still, this is a
19 world dominated by North America, by the U.S. The U.S.
20 still basically represents a little bit more than a
21 quarter of total world oil demand. On average, an
22 American consumes 17 times more oil than a Chinese.
23 Just to give you an idea, over 50 percent of world
24 gasoline demand is in this country. So, this country is
25 a very large consumer of oil, and most of that oil,

1 actually, is only consumed in one sector, which is
2 transportation. So, it is not an energy issue; it is
3 really a transportation issue.

4 I already talked about the Chinese coming and
5 taking our oil, but what you -- I mean, China has been
6 growing fast, but China is still at a very low base
7 compared to the United States.

8 If you look at the next ten or 15 years, it is
9 very difficult to imagine that China and India and 2 and
10 a half billion people there, which have their income
11 growing very fast, not willing to consume a lot more
12 oil, and after all, they want the same thing that we
13 want, the same type of life we want. They want to have
14 larger houses and appliances and cars, and that is going
15 to put tremendous pressure on the supply chain to be
16 able to provide them that at obviously low prices, and
17 if you look at how many cars you have in China versus
18 the United States, and this S-curve, that basically all
19 the countries who have developed have followed, is you
20 start to ask questions. Can China develop that way, and
21 if not, why not? And what is going to happen when the
22 income of another 200 million Chinese increases from a
23 \$1,000 to \$3,000 per year?

24 So, what you start to see actually with these
25 NOCs is a whole new set of energy architecture where the

1 Indians and the Chinese and the Russians and the Middle
2 Easterners are starting to make deals among themselves
3 and cutting the middle man, which is largely the United
4 States. You had an energy world system, which was very
5 much built and guaranteed by the United States after
6 World War II, to guarantee the sea lines, and to bring
7 investment and to force to open countries to investment,
8 and what you start to see in the last five years was in
9 a way the end of globalization, as we knew it in the
10 nineties, and the fact that these countries are reacting
11 to the policies of the United States, in the Middle
12 East, in Russia, in Latin America, in China, you start
13 to see alliances, political alliances forming around
14 energy, which are very much removing the U.S. from the
15 center of that game.

16 After all, the United States has built a set of
17 institutions over the last 30-40 years to guarantee
18 energy and to make energy cheap and abundant to spur
19 growth, and what you see right now is the U.S. has
20 pretty much abandoned that game in the middle of the
21 nineties, and certainly after -- I mean, this
22 Administration has gone quite against the institution
23 that it has put in place in the past, and you see all
24 these deals happening where capital and coordination is
25 happening between the countries, removing the United

1 States from that deal, and a new set of energy
2 architecture emerging, which in a way is threatening for
3 the United States.

4 In a world where you are really depending on
5 supply -- and it goes back to that -- it means that as
6 long as we believe that you need to grow your supply,
7 you are going to be dependent on geology, and geology
8 has been kind to the Middle East. Most of the reserves
9 are in the Middle East. It means that you are going to
10 depend on OPEC and particularly on Saudi Arabia. In the
11 world of constrained supply, the world of OPEC and Saudi
12 Arabia remain paramount.

13 Again, over 35 percent of oil reserves are in
14 one country, Saudi Arabia. Saudi Arabia understands the
15 role it plays in the market, which is a strategic role
16 that no other supplier plays, which is the supplier of
17 last resort, because it is willing to invest a huge
18 amount of money, over \$80 billion right now, to build
19 the spare capacity. Spare capacity is capacity that
20 you're building that you might not be using. There is
21 not a lot of countries willing to do that and certainly
22 not a single oil company is willing to do this, spending
23 \$80 billion to put aside, and you cannot ask that for
24 most of the OPEC countries. I mean, you cannot ask
25 Nigeria to build spare capacity. I mean, this is a

1 country which has \$150 per capita income, and you cannot
2 ask them to spend \$50 billion to keep reserves on the
3 side for the time when oil prices are too high for us to
4 drive, so that, then, we will bring that capacity online
5 to bring down their own oil prices. It is immoral.

6 With this reality, folks in U.S. energy security
7 who are accessing more supply is totally unrealistic,
8 and that has been the policy of this country. So, if
9 you look at U.S. energy policy, it is fairly simple. It
10 has been growing, growing, growing dependence on oil,
11 and I really dislike highly the term "foreign oil,"
12 because we are dependent on oil. Oil is a commodity, it
13 is fungible, there is an oil market. If you have a
14 disruption in Alaska, Venezuela, Saudi Arabia, China, or
15 name it, or the Gulf of Mexico for hurricanes, oil
16 prices go up. And the risk is a price risk; it is not a
17 supply risk. So, we are dependent on oil, and I do not
18 care if it is coming from the Middle East or from
19 Alaska.

20 I think Washington has a hard time to believe
21 that, and the perception is the Middle East is extremely
22 dangerous and the disruption is going to come from the
23 Middle East, so we need to secure the Middle East. That
24 might be right, but the fact is the disruption is a
25 price issue. It is not a volumetric issue at the end of

1 the day.

2 So, in general, all the responses in this
3 country are focused on supply, and you have this type of
4 billboard in the Midwest right now, energy independence
5 being the big rallying cry, and we do a lot of things to
6 believe that we are enhancing our energy security, but
7 actually we are not doing anything with that. Demand
8 management is totally -- you know, if you want to talk
9 about demand management in Washington, it means that you
10 want to raise taxes or you want to crimp the ability of
11 the household to have cheap oil, which is basically a
12 political death wish in the United States. So, you
13 don't do that.

14 Instead of that, you have what we call an
15 incredible maze of energy policies. These are all the
16 agencies, on the blue side is on the legislative side,
17 who are involved in energy policy, and on the red is on
18 the government side. These are all the agencies who are
19 doing energy policy in the United States, and I can
20 assure you they contradict each other, and there is
21 really no single focus here, and what is incredible is
22 you have this incredible federal and legislative regimes
23 working, and at the end, you emerge with I would say the
24 most absurd policy, which is ethanol.

25 Ethanol is a mouse which is not going to roar.

1 Even in the best case scenario, you might be able to
2 produce 500,000-700,000 barrels per day of ethanol in
3 the United States, which probably requires at least half
4 of that amount to produce. So, really, it is not a net
5 energy producer. Just to give you an idea, we consume
6 over 9 and a half million barrels a day of gasoline.
7 So, it is not going to solve any of our problems. It is
8 going to require a lot of energy in itself, which we
9 said at PFC, somehow it seems easier for the
10 agricultural business to plow Washington for money than
11 plow the land, and that is the consequence of that
12 policy.

13 So, the other response of any politician is we
14 need more research. This means do nothing, again. Just
15 to give you an idea, this is the market capitalization
16 of the oil companies in blue, and this is how much --
17 the little green box, how much they spend on F&D -- on
18 R&D. There is not a lot of money going into research
19 and development in the energy business. Take the
20 example of Exxon, the largest company in the world --
21 not in energy, the largest company in the world -- they
22 are really a nonfactor in terms of R&D globally. Even
23 Schlumberger, which is a company a tenth of its size,
24 they spend more money on that.

25 So, the question is, I think there is a large

1 consensus in this country that something needs to be
2 done, but nobody is willing to accept the pain of doing
3 it, because we believe that gasoline needs to be cheap,
4 and by the way, if you go to Europe, people are willing
5 to pay three times more for gasoline. I do not think
6 technology is the answer either. We cannot, by fiat,
7 make discoveries on technology, and as we said, I mean,
8 if the United States does not move technology, just uses
9 the existing technology, if U.S. cars are as efficient
10 as European cars, we would be consuming 5 million
11 barrels per day less of oil. That is basically all our
12 import of refined product and not -- I mean, 5 million
13 barrels per day of oil is the full consumption of
14 Germany and France, just to put things in perspective.
15 That is my last side.

16 So, I want to pass on this to the next speaker,
17 and the question is really, is at the end of the day the
18 energy policy of the United States hidden in its
19 military budget, because I was once on a panel with a
20 politician, and I said, "There is no energy policy." He
21 was a Senator, and he was once running for President,
22 and he said, "No, actually, there is an energy policy in
23 this country. It is called the U.S. Army. We send them
24 to the Middle East, and the cost is basically on the
25 Army and the Navy and not on the average citizen. That

1 is the policy of the United States."

2 MR. SWINDLE: Thank you very much, Roger.

3 MR. DIWAN: Thank you.

4 MR. SWINDLE: Our second speaker takes us, at
5 least for me, from the distinguished Roger Diwan of
6 PFC -- I want you to remember that -- to an admiral.
7 For a Marine, that is a hell of a leap, PFC or an
8 admiral. Well, we have got an admiral here. In today's
9 world of conflict, mayhem, and threats that Roger has
10 spoken of and you read about daily, one can conclude our
11 dependence on foreign oil and oil in general, and it is
12 a fungible product, and, therefore, it can come from
13 anywhere, and any disruption hurts us. It could be
14 argued -- and many do -- that it is really a national
15 security issue, but how do we address that?

16 Admiral Dennis Blair has lived an extraordinary
17 life. His experience gives him special insight on
18 national security issues. I worry about getting the
19 monthly bills paid. Admiral Dennis Blair's last command
20 was CINCPAC, which is the largest military combatant
21 command in existence. It is everything, you know, from
22 the West Coast on, and that's just an extraordinary
23 role.

24 He has had extraordinary roles throughout his
25 career, from a junior officer to a senior officer, and

1 he is, in addition to his Navy successes and
2 accomplishments, he has been first Associate Director of
3 the Central Intelligence Agency for military support of
4 the CIA. He is a graduate of the Naval Academy, 1968;
5 earned his Master's Degree in history and languages from
6 Oxford University. He has been a Rhodes Scholar. He's
7 been a White House fellow. He has had four
8 Distinguished Service Medals, and it goes on and on.

9 He is perhaps more famous than any of this for
10 his feat of trying to water ski behind his destroyer
11 when he was a junior officer, which as a Marine pilot, I
12 think that is really cool. He is currently a
13 councilmember of the Energy Security Leadership Council.
14 Please welcome Admiral Blair, and thank you for your
15 service, sir.

16 (Applause.)

17 ADMIRAL BLAIR: Thank you. Thanks, Orson. We
18 burned a lot of energy trying to get that -- to get up
19 on skis, and it did not last very long.

20 No, thanks for inviting me here. I am speaking
21 on behalf of my 17 fellow members of the Energy Security
22 Leadership Council when I say that energy security is
23 one of the most pressing national security issues of the
24 United States. Our council is a nonpartisan effort. It
25 brings together business executives and several of us

1 retired senior military officers who are concerned about
2 the perilous state of U.S. global energy security.

3 We are led by Fred Smith of FedEx; on the
4 military side Retired General P.X. Kelley, former
5 Commandant of the Marine Corps; Herb Kelleher of
6 Southwest Airlines; Andrew Liveris of Dow; Michael Eskew
7 of UPS are members. Retired military officers include
8 Chuck Wald, the former Deputy Commander of the European
9 Command; Admiral Vern Clark, former Chief of Naval
10 Operations; and my experience has been mostly in the --
11 mostly in the Pacific.

12 Now, Roger said that demand management is a
13 political death wish, but with the efforts of the
14 Council, we have managed to convince some members of
15 Congress to drink the Kool-Aid, and our efforts have led
16 to the introduction into Congress of the Security and
17 Fuel Efficiency Energy Act of 2007 or the Safe Energy
18 Act of 2007. It is co-sponsored by democratic Senator
19 Byron Dorgan and by his Republican colleague Larry
20 Craig, and the heart of this bill is really a bold
21 supply/demand compromise, vastly improved conservation
22 on the one hand and increased security of supply on the
23 other hand, and we believe that both these two parts,
24 this kind of a compromise, gets us away from this
25 sterile debate we have had over whether it is -- you

1 know, tastes better or less filling that we have had
2 over the years and gets us forward to where we need to
3 go.

4 On the demand side, the Safe Energy Act steadily
5 raises the fuel efficiencies of America's cars and
6 trucks, and under the new legislation, the new passenger
7 cars and light trucks sold in the United States each
8 year will have to get 4 percent more miles per gallon
9 than the cars sold a year before, and the same will be
10 true of commercial trucks, which have never been
11 previously subject to a fuel efficiency standard. Now,
12 this is an aggressive rate of improvement. There are
13 safeguards in case technically we simply cannot get
14 there, but we think it is achievable and important.

15 On the supply side, the Safe Energy Act calls
16 for expanding production of oil and natural gas in the
17 outer continental shelf in the waters in the Eastern
18 Gulf of Mexico in conjunction with stricter
19 environmental protections. It also calls for more R&D
20 dollars for enhanced oil recovery and carbon
21 sequestration techniques and technologies, and it will
22 facilitate biofuels infrastructure development for 30
23 billion gallons of ethanol per year by 2030, with half
24 that amount coming from cellulosic feedstocks. Last,
25 but not least, it will establish a strategic energy

1 infrastructure equipment reserve to deal with crises
2 similar to the ones that we experienced when Katrina
3 blew through the Gulf of Mexico.

4 So, if you add up all of these measures -- and
5 Roger made the point that if you look at individual
6 things, perhaps they do not seem to be decisive in
7 themselves, but if you add all of this up, they will
8 enable us to reduce the oil intensity of this country by
9 half by 2030; that is, for every dollar of gross
10 domestic product that the country produces, we will
11 consume half as much oil as we do today. In the past,
12 after the first oil shocks back in the seventies, we
13 performed that feat. In the next 15 years, we dropped
14 our oil intensity to half what it had been before, then
15 we leveled off. We need to get back on that curve of
16 reducing energy intensity.

17 Now, all the members of our Council are, of
18 course, patriots. We want this country to assess a
19 serious problem that is currently going in the wrong
20 direction, but I would like to talk a little bit about
21 the judgments of those of us who have military
22 experience and the judgments that drive our involvement
23 in this project.

24 Let me say it simply. The increasing U.S.
25 dependence on overseas oil from underdeveloped, volatile

1 regions of the world is putting a strain on our military
2 forces and is assigning them expensive missions for
3 which they are really the wrong instrument of national
4 power, and this problem is most vivid, you can best
5 understand it in the Persian Gulf, which is home to the
6 five countries with the greatest proven conventional
7 petroleum reserves.

8 When I first joined the Navy in 1968, the entire
9 U.S. military presence in that part of the world was a
10 one-star Navy admiral on his unarmed flagship, two
11 destroyers that would deploy to hold simple exercises
12 with Gulf countries. As I recall, gas at that time ran
13 30 to 40 cents a gallon for my Austin Healey 3000, and
14 the Persian Gulf was a rare duty station for members of
15 the armed forces.

16 In the late 1970s, two serious threats to
17 Persian Gulf oil were identified by the Carter
18 Administration, which became seized by the issues. The
19 first was a potential Soviet invasion from the north
20 coming over the Zagros Mountains into the oil regions
21 around the Gulf, and, of course, the Soviet occupation
22 of Afghanistan heightened the concerns. The second was
23 an aggressive and fundamentalist Iran, which was led by
24 a regime that had permitted and then exploited the
25 takeover of the American Embassy. So, in response, the

1 Department of Defense created the Rapid Deployment Joint
2 Task Force, the RDJTF, which was a planning headquarters
3 and a contingency force that could quickly deploy to the
4 Gulf to defeat a major land invasion.

5 In 1983, as a part of this general military
6 buildup against the Soviet Union, the Reagan
7 Administration, which came next, upgraded this task
8 force to a regional command, like the European Command
9 and the Pacific Command where I served and then
10 ultimately commanded. So, this Central Command had
11 full-time responsibility for U.S. interests in the
12 region. Every commander of the Central Command, which
13 was what the new organization was called, has had the
14 mission of ensuring the security of oil from the Persian
15 Gulf since that time.

16 In 1987, in response to the attacks on tankers
17 by Iran and Iraq as part of their bitter war, the United
18 States gave Kuwaiti tankers American registry, provided
19 naval escorts for them, as well as for tankers of allied
20 nations. So, by 1990, America had a fully functioning
21 military command structure; had deployed major forces to
22 the Gulf, both for exercises and for combat operations;
23 and had established a military commitment due to oil
24 security. So, the military component of American
25 security policy in the Gulf region had greatly

1 increased, and as we saw, it crowded out diplomacy,
2 reliance on the market, and more indirect instruments of
3 national power.

4 U.S. security policy in the Gulf since then has
5 been in the headlines. It is familiar to everyone, and
6 it has been dominated by the use of major military
7 force: Operation Desert Shield and Desert Storm in
8 1991; during the course of the 1990s, the maintenance of
9 Air Force and Navy air wings in the Gulf on a full-time
10 basis to enforce no-fly zones north and south; an Army
11 brigade full-time in Kuwait; periodic bombings of Iraq
12 during that period. Then following 9/11, the
13 intervention in Afghanistan and then the invasion and
14 occupation of Iraq.

15 For those of us in the armed forces, the
16 operations in this region of the world are expensive,
17 and they are frustrating operations on this major scale.
18 As a general rule, the use of large-scale military force
19 in volatile regions, underdeveloped countries, is
20 difficult to do right, has major unintended
21 consequences, and rarely turns out to be quick,
22 effective, controlled, and short-lived.

23 The Persian Gulf is just about on the other side
24 of the world from the United States. To keep one ship
25 on station there, it takes more than three in the U.S.

1 Navy; one there, one going, one coming. Pretty much the
2 same ratio holds for airplanes, and as we are learning
3 now in Iraq, for soldiers and Marines. You either just
4 got back, you're there, or you're getting ready to go
5 again.

6 A major military presence in the Gulf raises
7 local resentments and dangers that work against what we
8 are trying to achieve. Now, this is not just a
9 post-9/11 phenomenon. It was true well before 9/11 in
10 terms of the effect of major U.S. military forces
11 stationed or who were spending large amounts of time in
12 the Gulf region.

13 So, after all of this major military effort,
14 what is the bottom line? Gas is pushing \$3 a gallon for
15 my Jeep. We are extending the tours of soldiers in the
16 Gulf region to 15 months, and we are more subject to
17 events in the Gulf than we ever were in the past.

18 Now, why has American security policy developed
19 in this way? The fast pace of operations in that region
20 that I described since the 1970s has given little pause
21 for reflecting on overall trends and effectiveness.
22 American forces have now been engaged, militarily
23 engaged in the Middle East, since the tanker wars of
24 1987, and events have seemed to demand increasing our
25 military force, not reducing it. Drawing down is

1 perceived as weakness akin to Britain's withdrawal from
2 east of Suez after 1967, but underneath, driving this
3 engagement, is America's ever-growing dependence on
4 overseas petroleum.

5 This dependence has influenced successive
6 administrations to strengthen military engagement rather
7 than to search for other means, perhaps politically more
8 difficult, perhaps in the long run more effective, and
9 certainly more cost-effective means for boosting energy
10 security. An increased military force is always a good
11 short-term answer; it is always a safe short-term
12 answer. The costs, the side effects, become apparent
13 only in the long term.

14 This expensive and somewhat clumsy model is
15 shaping our energy security approach in other regions of
16 the world outside the Gulf. Consider Central Asia, home
17 to an increasing share of the world's oil reserves in
18 the future. Already we see reports through some of the
19 early chapters of the same play book that we followed in
20 the Persian Gulf 20 or 30 years ago.

21 Now, it may sound strange for a senior military
22 officer to stand here and say that the use of
23 large-scale military force is not the answer to a major
24 challenge to the interests of the United States, and I
25 am not saying that military force is not relevant to the

1 Persian Gulf and to other regions that provide resources
2 that are vital to the economy of the United States and
3 its allies. For example, once Iraq invaded Kuwait in
4 1990 with military force, it was going to take military
5 force to restore Kuwait's borders and independence.

6 I am also not saying that we should never have
7 major military forces deployed overseas or spending a
8 lot of time overseas. Our forces in Europe and Japan
9 provide allied reassurance, they don't raise fanatical
10 local resentment, and they are well-positioned to
11 protect our interests, both by conducting exercises and
12 for their operational responses.

13 But what I am saying is that it is a different
14 situation in the Persian Gulf, in Western Africa, in
15 Central Asia. To ensure energy flows from volatile
16 regions with underdeveloped societies and often
17 authoritarian governments, we should rely on a
18 combination of market forces, diplomacy, and the
19 judicious use of military force with a small footprint,
20 with a big backup. As we change the nature of our
21 military engagement, lessen the burden on major military
22 force deployments, we should be assisting and expecting
23 both the oil-producing and the other oil-consuming
24 countries to step up their own security contributions.
25 U.S.-heavy forces should remain over the horizon to deal

1 with major military threats.

2 A better model for the use of military force is
3 the way we have been able to use it in Southeast Asia.
4 It was not an approach that I invented when I commanded
5 our forces in the region. I inherited it. I found it
6 to be very effective, and I used it extensively. There
7 is oil and natural gas in this region. There are
8 volatile local disputes. There are extremist
9 organizations that use terrorism. There are weak
10 governments. There are important interests. Also,
11 importantly, we fought a long war with heavy forces in
12 that region, and the results have not been the success
13 that we thought they would be, and we were very keenly
14 aware of having tried that technique in that part of the
15 world with the Vietnam War.

16 But now we do not station forces there
17 permanently. We stay in touch all the time in other,
18 more effective ways, and I am talking about the military
19 component of our relationship with this part of the
20 world. We visit frequently so we know what is going on.
21 We know the leadership. We know the territory. We
22 rotate units through for exercises. We train local
23 security forces. We try to involve other countries and
24 the countries in the region in helping themselves.

25 We know that the countries that have oil and

1 natural gas have to sell it, so we can work on longer
2 term actions, and the result is, while there have been
3 ups and downs in some of our relationships in the
4 regions with countries like Indonesia, Vietnam, our
5 basic interests have been protected. Natural resources
6 have continued to flow.

7 Now, there are a few promising signs of
8 different ways of approaching this military component
9 and security component for energy security. The
10 Department of Defense has very recently established in
11 Africa a new command called the Africa Command. I said
12 earlier that the establishment of the Central Command
13 signaled the militarization of our approach to the
14 Persian Gulf. In contrast, the Africa Command has been
15 specifically established to work to strengthen African
16 capabilities, to use security assistance and diplomacy
17 together, along with other techniques, rather than brute
18 use of large-scale U.S. military force, and this is more
19 the correct approach.

20 However, the key to our ability to adopt a more
21 effective, flexible, and less expensive oil security
22 policy overseas is lessened dependence on overseas oil.
23 We will not have the breathing space or the incentive to
24 retool our security approach if we become more and more
25 dependent on overseas oil under this tight supply/demand

1 situation that Roger described. We will be driven to
2 the conservative short-term approach of using major
3 military muscle for every job.

4 So, we are really back to the objectives of the
5 Safe Energy Act of 2007. Improved security will require
6 greater conservation as well as increased production of
7 petroleum and alternatives here at home, and using
8 proportionally less oil in our economy is a key step.
9 Safely producing conventional and alternative fuels in
10 volumes that are commensurate with our security is
11 another important objective. Taking these steps will
12 increase our military flexibility and our overall
13 national security, not just our energy security.

14 We will be far less susceptible to being
15 whip-sawed by events in the Persian Gulf, Central Asia,
16 Western Africa, and elsewhere in the world. We will not
17 have to be on a hair-trigger for major military
18 involvements in these regions with their great expense,
19 all the difficulties of successful mission execution,
20 and withdrawal of forces. We can break the cycle of
21 increasing oil dependence, meaning increased deployments
22 of major U.S. forces in the volatile and undeveloped
23 regions where they are often poorly matched to the
24 mission of oil security.

25 So, let me conclude by once more summarizing the

1 Council's proposal as they are embodied in the
2 Dargon-Craig Safe Energy Act of 2007: Increase the fuel
3 efficiency of the American transportation sector;
4 explore and develop this country's own oil fields in a
5 rigorous and environmentally responsible and sensitive
6 manner; build a proper incentive structure for alternate
7 fuels; and design a more effective and efficient foreign
8 policy, security policy, for securing overseas oil that
9 we will still need. We believe that strong action in
10 all these areas is vital if we are to keep America safe,
11 strong, and prosperous in the future.

12 Thank you.

13 MR. SWINDLE: Having spent a career in the
14 military and been involved in some of those areas the
15 Admiral speaks of, you just think of the logic of safe,
16 but I know a lot of logical things that we discuss at
17 high levels, and there is always that difficulty of
18 getting buy-in. The American people have to buy into
19 these things, and how do you get the American people to
20 buy into them? You get political leadership to lead in
21 that direction. How do you get the political leadership
22 to buy in and how do you avoid dealing with something
23 that begs for rational solutions, and the solutions,
24 while complex, they still are fairly rational, but yet,
25 we cannot get the buy-in, and I think in terms of the

1 influences on our political process that would lead us
2 to those ends, because it is going to take a national
3 effort, and the special interests that influence the
4 policy-makers, which oftentimes means that everything
5 just runs into blank walls.

6 We have heard a great overview of the situation.
7 We have heard about a rational solution to many of these
8 problems and also a realistic look at what the military
9 can and cannot do, and our military right now is being
10 ground to its knees with the commitments we already
11 have. God forbid they get worse.

12 Our next speaker is going to give us the answer
13 to all those. Anne Korin is a very special person. She
14 is the co-director of the Institute for the Analysis of
15 Global Security in Washington, D.C., and the Institute
16 is a nonprofit organization that directs attention to
17 the strong link between energy and security and provides
18 a stage for public debate on various avenues to
19 strengthening the world's energy supply system.

20 She is also the chair of the Set America Free
21 Coalition, another group working towards finding
22 solutions to these energy problems that we have,
23 promoting the idea that we need to discuss this and seek
24 these solutions with great seriousness. She is the
25 editor of Energy Security, an online publication which

1 she publishes on energy security and other things;
2 again, a public forum in a sense.

3 She appears in the media frequently, has written
4 articles for Foreign Affairs, American Interests,
5 Commentary Magazine, The Journal of International
6 Security Affairs. She is a consultant to a myriad
7 number of technical companies. Her education includes
8 an engineering degree in computer science from Johns
9 Hopkins University, and she is working toward a
10 doctorate at Stanford university. She is a very bright,
11 attractive person. We have got to find somebody with an
12 audience that can be influenced, and, Anne, it is in
13 your hands, so give us a solution. Thank you.

14 MS. KORIN: I am going to shut this down so I
15 can see you.

16 All right, let's step back a moment from the oil
17 issue and talk about war, and the fact is we are
18 fighting a war. We call it a war against terrorism, and
19 I would submit this is not a very good name for the war.
20 We did not call World War II a war against tanks, and we
21 did not call the Cold War a war against missiles, and
22 today, also, just as in those wars, we are at war with
23 an ideology. Terrorism is a tactic. It is a tool.

24 The ideology we are at war is radical Islam. It
25 takes various forms, radical Sunni Islam, radical Shiite

1 Islam, but we are in a very peculiar situation, and that
2 is that essentially, for the first time in our history,
3 we are fighting a -- other than perhaps the Civil War --
4 we are fighting a war and funding both sides. On the
5 one hand, our tax dollars pay for the defense of our
6 country, for our military, for our homeland security.
7 On the other hand, every time we go to the gas station,
8 some of that country -- some of that money is going to
9 countries that use some of it to fund this war against
10 us.

11 Why is that? Two-thirds of the world's oil
12 reserves are in the Middle East. If you look beyond the
13 Middle East, some three-quarters of world oil reserves
14 are in countries in which radical Islam is on the rise,
15 and certainly we do not import all of our oil from the
16 Middle East, but as you heard, oil is a fungible
17 commodity, and the Middle East and the Islamic
18 countries, countries in which radical Islam is on the
19 rise, have control of the world's oil reserves.

20 We are in a very peculiar situation. Think of a
21 country like Saudi Arabia and think of what has happened
22 to the income of Saudi Arabia since 9/11, all right?
23 The delta in oil prices is some \$35 or \$40. What does
24 that mean to a country like Saudi Arabia? That is an
25 extra -- extra -- \$400 million every single day, and

1 what is that money going to fund? And let's not even
2 talk about in Iran. What is that money going to fund?
3 Well, who paid for the Pakistani nuclear program? With
4 Saudi money. Who funds madrassas around the world? Who
5 proliferates radical Shiites, radical Sunni Islam? The
6 Iranians, the Saudis, other Gulf countries. So, we are
7 in a situation which we are not going to win the war
8 against radical Islam unless we stop paying for the
9 other side. That is the number one national security
10 issue that relates to our dependence on oil.

11 The second issue is this: Our most critical
12 supply chain is our energy lifeline. Why most critical?
13 Because transportation underlies the global economy, and
14 transportation is, of course, 98 percent
15 petroleum-based. It is a completely brittle system.
16 Terrorists have marked oil as a target. Just listen to
17 what they say.

18 After the attack on the French -- do you
19 remember the attack on the French oil tanker THE
20 LUNDBERG a few years ago off the coast of Yemen? After
21 the attack on the French oil tanker -- this is an Al
22 Qaeda statement -- by hitting the oil tanker in Yemen,
23 the Moujahadin have hit the feeding line and the
24 provision to the artery of the life of the crusader
25 nation. That is quite a clear statement.

1 You need to listen to what the enemy says and
2 believe that the enemy means it in order to devise a
3 strategy to defeat the enemy. Listen to statements in
4 Iraq. It is better to blow up a pipeline than to kill
5 ten American soldiers. It has more strategic impact.
6 Terrorists understand that as it becomes more
7 difficult -- certainly not impossible, but more
8 difficult -- to strike us here in our homeland, they can
9 carry out a spectacular attack in their own backyard
10 where they have plenty of friendly support and they know
11 the terrain and have a severe impact on our homeland
12 here, on our economy and the economy of that of the rest
13 of the developed world and the developing world.

14 We see -- the attacks against critical
15 infrastructure around the world, you certainly see
16 hundreds of such attacks. The bulk of attacks is
17 centered in Iraq, but you have seen this type of attack
18 metastasize from Ecuador to Nigeria because terrorists
19 export tactics that work, and the coalition in Iraq has
20 expended an enormous amount of money and manpower trying
21 to protect the oil infrastructure there. We are not
22 back to prewar production levels. You cannot put a man
23 on every yard of pipeline. We are talking about
24 thousands of miles of above-ground pipeline.

25 Now, attacks on pipelines are annoying; they are

1 not strategic. Attacks on tankers are annoying; they
2 are not strategic. They send insurance rates up; they
3 cause some volatility. There is, in fact, a fear
4 premium built into the price of oil. The market's
5 pricing the volatility, concerned about attacks now,
6 concerned about bigger attacks to come, but there are
7 certain types of attacks that could certainly be
8 strategic, and we know that Al Qaeda and its affiliates
9 are thinking in this direction, have certainly made some
10 inroads towards carrying out attacks on this.

11 It was, of course, the attempted attack on
12 Bazhra, a terminal in Iraq, a few years ago, which was
13 indicated it was a coordinated suicide attack, that
14 people are actually willing to die, not to die to kill
15 other people, but to die to disrupt the global oil
16 market, which is a pretty profound statement. It means
17 they see disruption of the global oil market as an
18 instrument of economic warfare against us, but strategic
19 attacks would be attacks on the critical energy hubs in
20 Saudi Arabia, for instance.

21 We have a facility like Abqaiq which processes
22 two-thirds of Saudi oil every single day. We have a
23 facility like Rastan Oil which has the biggest offshore
24 loading terminal in the world. We had a planned attack
25 against the SCADA system, the command and control

1 system, in Ras Tanura by insiders which was thwarted
2 because of good intelligence. We had an attempted
3 attack against Abqaiq, which the media said was thwarted
4 by the Saudi security forces, and I would tell you it
5 was thwarted by the incompetence of the terrorists, but
6 a serious and successful attack or coordinated attack
7 against critical facilities in Saudi Arabia could well
8 send oil over \$100 a barrel, \$150, who knows?

9 So, that's a second -- and, of course, one
10 important reason to understand, the reason that our oil
11 market is so sensitive is that we have very little
12 reserve capacity left in the market. We have an 85-
13 million-barrel-a-day market and perhaps just over a
14 million, a million and a half barrels of spare capacity.
15 That is what Roger talked about, and all that spare
16 capacity is essentially in Saudi Arabia. So,
17 essentially we are driving a car with worn-out shock
18 absorbers. Every little bump sends us hitting the roof,
19 and if you remove a significant amount of production, 4
20 or 5 million barrels a day, from the market because of a
21 successful attack or attacks in Saudi Arabia, then you
22 are driving a car with absolutely no shock absorbers.

23 Okay, so issue number one, we are funding both
24 sides of the war on radical Islam. Issue number two,
25 our most critical supply chain, our energy lifeline, is

1 open to disruption. Terrorists understand it is our
2 Achilles heel. Issue number three is, of course, the
3 rise of the developing world. You have heard of the
4 growing consumption, energy consumption, of China and
5 India. They do not want to drive bicycles anymore,
6 which is good, they want to live like us, but it has
7 serious implications for our foreign policy. Why?

8 Well, let's focus on China. China has a couple
9 options. It can deal with countries we do not have a
10 good relationship with. Well, what happens then? Let's
11 talk about two countries, Sudan and Iran. Genocide
12 going on in Sudan, Arab Islamist Government of Sudan
13 first went after the black Christians; now they are
14 murdering the black Sufi Muslims because they are not
15 quite Muslim enough for their tastes. Have we been able
16 to do anything about it? Not really. Well, who is
17 Sudan a major oil supplier to? China. And China sits
18 on the UN Security Council, and, of course, it has that
19 veto power which it will not hesitate to use to protect
20 its major suppliers.

21 Look at Iran. Iran is developing what it calls
22 a peaceful nuclear program, what we believe is a nuclear
23 weapons program, and everybody is talking about
24 sanctions, and let's remember that Iran has purchased
25 itself the support a third of humanity by signing energy

1 deals with China, with India, with other countries in
2 the developing world. This is putting aside Russia and
3 France and all the other countries that it is dealing
4 with, but when you just look on the energy side, it has
5 purchased itself that Chinese veto.

6 All right, so, China has another option. It can
7 deal with countries which we may not like, we may not
8 appreciate their values, but we certainly do rely upon
9 them for oil, Saudi Arabia or Venezuela, and I just ask
10 you to think about who Prince Nayef in Saudi Arabia
11 would prefer to deal with, an American oil company or a
12 Chinese government-controlled oil company? Ask yourself
13 that not just about Prince Naief in Saudi Arabia, but
14 about various countries in Africa.

15 Why? Because if you are an African dictator, do
16 you want to deal with an international oil company that
17 has human rights folks sitting on one shoulder, the
18 Securities and Exchange Commission on the other and the
19 Foreign Corrupt Practices Act to contend with? No. You
20 would much rather deal with a Chinese
21 government-controlled company that has no problem paying
22 you bribes, does not care how you treat your women,
23 certainly does not care how you treat other religions.
24 It is very simple to do business, but the Chinese, they
25 give you money, you give them oil, end of story, and

1 that, of course, has implications for our sphere of
2 influence around the world, because where we lose
3 economic influence, we lose our sphere of influence.

4 All right, focusing particularly on our
5 hemisphere, of course, every barrel of oil that China
6 purchases from our hemisphere, Canada and Venezuela, is
7 one more barrel of oil we need to purchase from the
8 unstable Middle East, and we certainly cannot tell the
9 Chinese, "Sorry, guys, party's over, no oil for you,"
10 and I would remind everybody, if anybody is a history
11 buff here, World War II, what precipitated the bombing
12 of Pearl Harbor? Does anybody remember? Anyone? Yeah,
13 we embargoed their oil. So, you certainly do not want
14 to be in a situation of resource conflict or a situation
15 in which you are pushing a burgeoning power to the wall,
16 because sometimes that forces that power to make very
17 stupid decisions. We do not want to be in a situation
18 where the Chinese feel inclined to make stupid
19 decisions; rather, we want to, to the extent possible,
20 work with the Chinese to help us both avoid a conflict.

21 All right, so I have painted a rather unpleasant
22 picture, and I certainly do not want to leave you on an
23 unhappy note, so let's talk about what we can do about
24 it. Let's talk about what we can do about it.

25 Now, the first thing we have to remember is we

1 are always going to need oil. This right here is made
2 out of oil. This is probably made out of oil. I'm sure
3 the cover on these chairs is made out of oil.
4 Everything you see around you in this room, it has oil
5 as a component or else was brought here by oil. We are
6 always going to need oil. This is not about not
7 needing, not using oil.

8 This is about -- our focus needs to be on
9 shifting oil from being a strategic commodity to being
10 just another commodity, and keep in mind that salt used
11 to be a strategic commodity, right? Wars were fought
12 over salt, okay? Oil is going to be important. It is
13 always going to be important, but what we need to do is
14 reduce the strategic value of oil. How do we do that?

15 We need to make oil interchangeable with other
16 energy resources. How do we do that? Well, look at
17 where we have done it already. One major accomplishment
18 since the seventies, and a lot of people and certainly a
19 lot of politicians do not realize this, is that we
20 essentially do not generate electricity from oil in this
21 country anymore. Essentially, none of our -- 2 percent,
22 okay? Essentially none of our electricity is generated
23 from oil. We have diversified our power sector away
24 from petroleum, but what haven't we done?

25 Two-thirds of our oil consumption is in the

1 transportation sector. That is mostly cars and trucks,
2 some ships and planes, but mostly cars and trucks, and
3 that sector, as we said, is completely
4 petroleum-dependent. So, what we need to do, in order
5 to reduce the strategic value of oil, is to create fuel
6 choice in the transportation sector, okay, and to create
7 fuel choice with technologies that are available today.

8 Why is it so important to focus on technologies
9 that are available today and not on R&D stage
10 technologies? Because if you buy a car today, in this
11 country, somebody is going to be driving that car for
12 16.8 years. At that point, it either gets scrapped or
13 sold overseas. So, that means that any technology you
14 want to transition through the transportation sector,
15 you have to take into account that 15 to 20-year
16 transition period. So, if you wait, you know, 20-30
17 years for some pie-in-the-sky technology -- and, you
18 know, I'm thinking hydrogen fuel cells here -- to come
19 to fruition, you still have to tack on that 15 to
20 20-year transition. We cannot afford to wait.

21 What can we do right now? Well, let's look at
22 what other countries are doing. First of all, I want to
23 point out, we have a huge lesson to learn from Iran.
24 What is Iran doing? Well, Mr. Ahmadinejad may be a
25 genocidal fanatic, but he is not a stupid man, and he

1 recognizes he has a major vulnerability. If the world
2 does actually get its act together and decide to
3 sanction Iran, the most critical thing for Iran, the
4 most critical blockade, would be a blockade of gasoline
5 supplies.

6 Why? Well, Iran has a huge reserve of oil, but
7 it does not have sufficient refining capacity. It has
8 to import 40 percent of its gasoline, right? So, what
9 has Ahmadinejad done? He has put the country on a
10 five-year plan to shift large parts of the
11 transportation sector away from refined petroleum
12 product into natural gas. There are over 107 conversion
13 centers in Iran. You drive in the morning, drive your
14 car in in the morning, pay \$55, pick it up in the
15 afternoon, and it is a biofuel vehicle that can run on
16 gasoline and natural gas. The Iranian Government is
17 subsidizing the conversion of fuel stations at \$300,000
18 a pop to serve natural gas, et cetera, et cetera,
19 certification centers, the works, okay?

20 So, what can we learn from Iran? You know, we
21 are in essentially the same natural gas problem as oil,
22 so I am not advocating that, but what we can learn from
23 Iran is this: The country is facing a strategic
24 vulnerability. Looked inward, took its domestic energy
25 resources, looked at what it had, and put itself on a

1 course to change the situation, okay?

2 What can we do? Well, now, let's move on to our
3 hemisphere and look at Brazil, okay? Ethanol. Well, we
4 make ethanol from corn in this country. In Brazil,
5 guess what it is made out of. Sugar cane. It is eight
6 times more efficient to make ethanol from sugar cane
7 than it is from corn. Ethanol is not the only alcohol.
8 Let's backtrack here a moment and say, what is Brazil
9 doing?

10 Most of the new cars in Brazil are cars called
11 flexible fuel vehicles. These are cars that cost less
12 than \$100 extra than gasoline-only cars, very simple,
13 straightforward technology, and they can run on any
14 combination of gasoline and alcohol. Now, let us stress
15 here, alcohol is not just ethanol, and ethanol is not
16 just corn.

17 Now, let's look at what we are doing. Well, we
18 don't impose a tax -- and we are talking to the FTC
19 here, so let's focus on trade, okay? All right, we do
20 not impose a tax on imported oil. We impose a
21 54-cent-a-gallon import tariff on ethanol. Look beyond
22 Brazil. There is some 100 countries in the world, poor
23 countries, that have a suitable climate for growing
24 sugar cane and could become ethanol suppliers. Focus
25 here, again, not energy independence; energy security,

1 energy diversity, okay? Shift oil from being a
2 strategic commodity by introducing competitors into the
3 transportation fuel market, and yet, what are we doing?
4 We are taxing a competitor to oil in the transportation
5 sector.

6 Now, what would a 54-cent-a-gallon tariff mean
7 on a barrel of oil -- if you had that tax on a barrel of
8 oil on an energy-equivalent basis? Anyone want to take
9 a guess? It is a \$23-a-barrel tax on oil. It is as if
10 we imposed a \$23-a-barrel import tariff on oil. That is
11 what we are doing to ethanol, sugar cane ethanol, which
12 is eight times more efficient to produce than corn.
13 That is ridiculous, and anybody who says, "I'm for
14 ethanol for energy security," and does not advocate
15 removing that tariff is a protectionist and a complete
16 hypocrite, which, unfortunately, is a situation that we
17 are facing, because if you want to run for President,
18 your first stop, of course, is Iowa, and the first
19 question you get asked off the plane is, "What's your
20 position on ethanol," and I hope there will be some
21 brave souls that are willing to actually stake out a
22 strong position, but I am not overly optimistic.

23 I will tell you later how I see the politics of
24 this developing in terms of removing that tariff,
25 because I think it is possible with some smart policy to

1 do that and get buy-in from all the special-interest
2 groups.

3 All right, so ethanol is not the only alcohol.
4 What is another alcohol? Methanol. Ethanol and
5 methanol differ by one letter, but so do Iran and Iraq,
6 and it is a pretty important difference. Methanol can
7 be made from anything that contains carbon. Globally,
8 it is made mostly from natural gas. You can also make
9 it from coal, and let's keep in mind this country is the
10 Saudi Arabia of coal. We have a quarter of the world's
11 coal supplies. China and India have a lot of coal, too.
12 Anything I am talking about here, you need to think,
13 does this apply to China and India and the rest of the
14 world as well? Because it is not enough for the U.S. to
15 do this on its own, right? We need to make sure that
16 the countries that are really -- their demand for
17 transportation fuel is burgeoning now, and remember, the
18 demand for oil in China and India is largely driven by
19 the transportation sector, that increase in demand. We
20 need to make sure that they can emulate these type of
21 solutions as well.

22 So, methanol you can make from coal at under 50
23 cents a gallon. If you go to Kingsport, Tennessee, you
24 will see a commercial-scale plant that has been doing
25 that for over ten years now. Methanol has about half

1 the energy of gasoline, so that is about a dollar per
2 gasoline equivalent gallon. Not bad. You can also make
3 methanol from biomass. There is a lot of talk these
4 days about cellulosic ethanol. We can get into the
5 details in the Q&A, but there is a lot of R&D money
6 being expended to make methanol from cellulose. Maybe
7 it will succeed; maybe it won't.

8 Making methanol from cellulose is essentially
9 the same as making methanol from coal. You gasify the
10 biomass, you pass it over a catalyst in a slurry, and
11 voila, you have methanol. It means you have much less
12 of a technological hurdle than making ethanol from
13 cellulose. It does not mean that, you know, the
14 economics make sense. It depends on, of course, the
15 cost of the biomass and so forth, but we know that the
16 economics make sense for coal.

17 So, let's look at this. There are other
18 alcohols, other blends, but I think I have illustrated
19 that we have potential for fuel choice. When it comes
20 to liquid fuel, I am going to step up to something a
21 little bit different and very, very important.

22 It is not enough, it is not enough, to have
23 liquid fuel choice. We need to introduce another
24 competitor, another player into the transportation fuel
25 market, and that is electricity. Now, you drive a

1 Prius. Anyone else here drive a hybrid? Oh, okay.
2 Well, you folks, if you are interested in buying a car,
3 you should really test-drive a Prius, but that is really
4 excellent mileage, but if you wanted to shift beyond --
5 let's talk about how a hybrid works for a moment, okay?
6 A hybrid has an internal combustion engine and a liquid
7 fuel tank. It also has a battery, and that battery
8 gathers the charge that would otherwise be dissipated as
9 heat every time you brake. That is essentially how a
10 hybrid works. You use that energy later on when you are
11 driving. More efficiency, okay?

12 Well, step up beyond a hybrid. Add a plug, add
13 a vango battery, and you have a plug-in hybrid, and what
14 is so special about a plug-in hybrid? What is so
15 special about a plug-in hybrid is that you certainly
16 have your liquid fuel tank, you have your internal
17 combustion engine, you have your 300-mile range;
18 however, you have a battery that can store, let's call
19 it, 20 miles worth of charge.

20 Why is that so important? It is so important
21 because 50 percent of cars on the road in the U.S. today
22 are driven some 20-25 miles a day or less, okay? Yeah.
23 So, if you are driving a plug-in hybrid and you are one
24 of those many Americans that drive 20-25 miles a day or
25 less, what does that mean? Most of your driving is

1 being done on electricity.

2 Let's reframe the problem here. You know, miles
3 per gallon are very, very important. If we can increase
4 the efficiency of our cars, if we can improve miles per
5 gallon, anything we can do in that direction is great,
6 but our focus here has to be to shift oil from being a
7 strategic commodity to being just another commodity.
8 Efficiency is not enough, okay? We have to focus on
9 miles per gallon of petroleum fuel.

10 Now, what are you doing with the plug-in hybrid?
11 Most of the energy that you are driving on is
12 electricity, and we already said electricity is
13 essentially not generated from oil. You are driving on
14 coal, you are driving on nuclear panel, you know, put a
15 solar panel or a windmill on your house, you are driving
16 on that. Essentially, if you look at it in terms of
17 miles per gallon of gasoline, you are getting a hundred
18 miles per gallon of gasoline. Not a hundred miles per
19 gallon, okay? A hundred miles per gallon of gasoline.

20 So, what does that mean? That means that you
21 can tell Detroit, which feels more comfortable selling
22 SUVs and pickup trucks -- not because it is ideally
23 inclined to sell SUVs and pickup trucks, but because
24 Americans like big cars -- you can tell Detroit, you
25 know, you can sell these big cars that people want to

1 buy. What a car runs on is a black box to a person.
2 Make it a multi-fuel vehicle.

3 Now, why are plug-in hybrids so critical? There
4 is a serious strategic issue here. It is not just that
5 you are introducing competition into the transportation
6 fuel market. This is a very critical issue. If you
7 remember other attempts, Synfuel Corporation and so
8 forth, to really make a shift, a profound shift to
9 alternative fuel, you also recall what happened
10 afterwards. Oil prices dropped, right, the bottom fell
11 out of the market, investors got -- capital got shy and
12 got out of the way. Now, we do not want to be in that
13 situation again. So, what is so special about
14 electricity?

15 Well, today, it is about 12 cents a mile to
16 refuel with gasoline. It is 3 cents a mile to refuel
17 with electricity, okay, and that is not even looking at
18 off-peak pricing, which could go down as low as a cent
19 and a half a mile. Why is that so important? What
20 price would you have to drop oil down to to compete with
21 3-cent-a-mile driving? You would have to drop it down
22 pretty darn far. And to compete with a cent-and-a-half
23 off-peak power? You know, we are talking \$5 to \$10 a
24 barrel. If you cannot drop it down that far, then you
25 are not going to bother dropping it down at all.

1 So, what does that mean? That means that if you
2 have electricity as a competitor in the transportation
3 fuel market, electricity acts as a protector for the
4 alternative liquid fuels that are competitive at
5 \$35-\$40-\$45 a barrel. That is what that means. So, it
6 is critical for us to get electricity into the
7 transportation fuel market.

8 Now, what is the state of technology? Well,
9 look beyond our country. Look at what the Chinese are
10 doing. Chinese one-hour batteries, that is a battery
11 that could take you some 20 miles; projected price,
12 \$2,500. Detroit auto show last year, there was a
13 Chinese family sedan, under \$10,000 family sedan called
14 the Geely; add \$5,000 to make it a hybrid; add \$2,500 to
15 make it a plug-in hybrid; add a hundred bucks, go all
16 the way, make it a flex-fuel vehicle. A flex-fuel,
17 plug-in hybrid, under \$20,000 family car, coming soon to
18 a Wal-Mart near you. Just imagine what that is going to
19 do to our auto companies, okay?

20 Now, a flex-fuel, plug-in hybrid, what does that
21 mean in terms of miles per gallon of gasoline? You have
22 that liquid fuel tank, let's say 80 percent alcohol, 20
23 percent gasoline in your tank, you are stretching each
24 gallon of gasoline by another factor of five. You are
25 getting for this 500 miles per gallon of gasoline

1 figure, okay? Not 500 miles per gallon.

2 Now, let's talk about what is happening in
3 Congress. I chair a group called Set America Free.
4 These ideas are embodied in a blueprint for energy
5 security, which you can find on our web site,
6 setamericafree.org. They were introduced as a bill last
7 session; re-introduced this session as a bipartisan
8 legislation, had the support of 25 Senators from the far
9 left to the far right. You don't often see a Brombeck
10 and a Sessions sitting together with a Kerry and a
11 Kennedy, but you do here, and some 80 representatives.
12 So, I believe the Senate bill should be marked up this
13 month, but we will see what happens.

14 There are difficult political hurdles to
15 overcome in this country. I mentioned the ethanol
16 tariff. I think that one way for us to remove the
17 ethanol tariff is to require -- first of all, we have to
18 require, in this country, require seatbelts, require air
19 bags in every care. Every car produced in this country
20 should be a flexible-fuel vehicle, every single car, and
21 not just gasoline/ethanol. It is just as easy for the
22 auto companies to do gasoline/ethanol/methanol, okay?

23 I am mentioning this because I want you to
24 understand this is what it is going to take to create a
25 strategic shift in the transportation fuel market, but

1 this has another positive impact, because once do you
2 that, what happens? The potential demand for alcohol
3 fuel grows much, much bigger than the domestic industry
4 can handle. If you listen to the domestic corn folks,
5 they will tell now in their wildest dreams they are
6 thinking 15 billion gallons. Their wildest dreams are
7 some 10 percent of our transportation fuel supply.

8 So, if you shift to a situation where most of
9 our new cars are flexible-fuel vehicles, that is way,
10 way more than they can handle, and, therefore, they lose
11 their fear of that tariff, because the market becomes
12 much bigger than they could manage, and new suppliers
13 entering in are much less of a threat.

14 So, I have outlined what we can do. I want to
15 make it very clear that we have a responsibility to take
16 action on many fronts, and if we do not take action,
17 then we are going to be in a situation where, as the
18 International Energy Agency puts it, the well-being of
19 the world is reliant on the decisions of five or six
20 countries in the Middle East.

21 Thank you.

22 MR. SWINDLE: Thank you very much.

23 We have got about five minutes before we
24 conclude.

25 We are sticking to the schedule, right John?

1 MR. SEESEL: If we can, yeah.

2 MR. SWINDLE: Okay. So much has been said here.
3 This is very powerful. As I said, I do not know
4 anything about this, but this is just fascinating, and I
5 am sure there are some questions in the audience, and I
6 am going to start right over here.

7 MR. GLAZER: A question, and this is not a
8 political question as much as a sort of question on
9 impact on oil markets --

10 MR. SEESEL: Craig, could you identify yourself
11 for the stenographer?

12 MR. GLAZER: Craig Glazer from PJM
13 Interconnection, which is an electric grid operator
14 relevant to your last point, but my question is really
15 not a political question as much as a sort of impact on
16 world oil markets.

17 This country is in the throes of the debate
18 about the Iraq war, should there be a early withdrawal,
19 et cetera. Again, not on the politics of it, but I
20 would be interested in everybody's views on what would
21 be the impact of a withdrawal at any given point in time
22 on world oil markets?

23 We sort of heard on the first panel, the
24 beginning of this, that Iraq really is not that much of
25 a player today, but what would be the impact on world

1 oil markets from a withdrawal of U.S. troops, if any?

2 MR. DIWAN: Well, I mean, the question is, would
3 Iraq continue or not to produce oil? Let's say you lose
4 the Iraqi production, which is 1 and a half million
5 barrels per day of exports. Right now, Saudi Arabia
6 could replace that pretty much overnight. So, the issue
7 is not really the loss of the Iraqi production; it is
8 what happened in the region, and if it is further
9 decivilized or if the violence in a way is contained and
10 managed by the regional power to keep it in Iraq -- I'm
11 not sure they can solve it -- in that sense, Saudi
12 Arabia has been trying to boost its capacity to be able
13 to respond to something like that, and actually
14 something probably bigger than that, so it will not be
15 dramatic. The market has been very desensitized to
16 Iraq. Everybody assumes that sooner or later we are
17 going to lose a lot of that.

18 MR. SWINDLE: Anne?

19 MS. KORIN: I would say the biggest threat in
20 terms of withdrawal from Iraq is, of course, the
21 increase in volatility. You know, the thing is we
22 already see massive amounts of terrorist attacks against
23 all infrastructure in Iraq. In a perverse sort of way,
24 if we leave or if we leave more of the managing of the
25 security, which we have gradually been doing, the

1 security of the pipelines is in the hands of the Iraqis,
2 they may be a lot more brutal dealing with people that
3 want to attack the pipelines than we are willing to be.
4 They may be willing to cut deals with them that we would
5 not necessarily be willing to cut. I do not think,
6 necessarily, that the situation there in terms of the
7 pipelines would be much worse.

8 However, I think what would happen if we
9 withdraw from Iraq is you have a general encouraging of
10 radical Islamist groups around the world, of terrorist
11 groups around the world, because they feel as though
12 they have managed to defeat the big satan, and so that
13 would, in general, encourage more attacks, period, and
14 among those attacks would be more attacks against energy
15 infrastructure, and, therefore, you would see an
16 increase in volatility. So, not necessarily an increase
17 specifically in Iraq, but an increase throughout the
18 region.

19 MR. SWINDLE: Admiral?

20 ADMIRAL BLAIR: The only thing I would say is I
21 do not think you can answer that question in isolation.
22 The question is, what would be the plan under which such
23 withdrawal would take place? Does it involve the
24 building of a coalition outside of Iraq? Does it
25 involve a strike force so that you can go into Iraq?

1 So, it is kind of hard to answer in the abstract.

2 MR. DIWAN: I would like to make a comment,
3 actually, on Anne's intervention. I have no problem
4 with the issue that she is raising, is how do we move
5 oil from a strategic commodity to any other commodity.
6 What I really have a real problem with is the number of
7 inconsistencies, lies, and bogus arguments that have
8 been made to get to that argument, and there is a whole
9 list, and we can spend the next hour talking about them,
10 but why don't we just say that the U.S. needs to be less
11 dependent on oil and we need to do all these things
12 without having to go through all of that?

13 I mean, the first argument, we are funding both
14 sides. You say we are funding both sides, and then a
15 little bit later you are saying that Saudi Arabia is
16 really the first front against Al Qaeda because there
17 is attacks against their facilities and they are doing
18 everything possible to stop them. So, how can they be
19 on both sides of that argument?

20 Higher oil prices have allowed, actually, Saudi
21 Arabia to ramp up its attack against the Al Qaeda.
22 After all, Al Qaeda is the -- the main goal is to
23 remove that regime and take order from it, so the main
24 argument here, I don't think -- it does not work.

25 I can go through a lot of those. China and

1 Iran. China and Iran have a trade relationship around
2 \$7 to \$10 billion a year. China exports over \$150
3 billion to the United States. Which relationship do you
4 think is more important for the Chinese? By the way,
5 they voted twice sanctions on Iran over the last 90
6 days. So, it also shows that where the policy matters.

7 I can go on and on. You say increase in
8 terrorism in places like Ecuador and Nigeria and
9 Colombia on oil infrastructure. Those have always
10 existed, and it is the higher oil prices which are
11 triggering these, because the local communities are not
12 getting anything. So, we can call that terrorism or we
13 can say that these are social contracts who have not
14 been done by central governments who are squeezing the
15 local community, taking their resources and not paying
16 them anything. I can go on and on and on. Iran --

17 MR. SWINDLE: Before we go on and on, we have
18 got about two minutes here.

19 MS. KORIN: I would like to quickly respond.

20 First of all, the sanctions that have gone
21 through the UN Security Council are extremely weak,
22 watered down, and unlikely to have any impact, which is
23 why the Chinese and other countries were willing to vote
24 for them. I talk about serious sanctions.

25 Second, oil is, of course, critical to China

1 because they don't want unemployed young men riding in
2 the streets because fuel prices have gone up. It is a
3 strategic commodity. The focus here has to be on
4 disruption of strategic commodity, and that is what oil
5 is. China may have a bigger trade relationship with us.
6 I would say its trade relationship with Iran is more
7 strategic than its relationship with us.

8 Now, when it comes to --

9 MR. DIWAN: There are a million jobs at --

10 MS. KORIN: -- when it comes to Saudi Arabia, I
11 know it is fashionable in this town to call the Saudis
12 our friends. Excuse me, but you still listen to
13 statements from our Treasury Department, and you will
14 see that the Saudis are among the biggest funders of
15 radical Sunni Islam around the world. Who exactly is
16 funding madrassas around the world? It is the Saudis.
17 They have spent over \$70 billion proliferating radical
18 Islam around the world.

19 The Saudi Government, unlike other governments,
20 is not a normal structure. You have a situation with
21 many, many, many princes, which receive very large
22 stipends, sufficiently large to run their own foreign
23 and domestic policy. So, while all the Saudi
24 representatives here might tell us one thing, and
25 perhaps they might mean it quite sincerely, there are

1 plenty of other princes that are doing quite the
2 opposite, and they may be funding radical Islamist
3 groups like Al Quaeda because they would not like
4 them -- you know, mafia protection money-type thing,
5 they do not want them to go after them, or they may be
6 funding them because they are ideologically aligned. In
7 any case, I do not think there is a question that the
8 Saudis are funding the proliferation of radical Islam
9 and terrorism.

10 MR. SWINDLE: Okay, we are going to have to stop
11 here. Obviously, this discussion will go on. Admiral,
12 I am thinking of you going back on active duty and we
13 will deploy a carrier air group to resolve this.

14 As you see, there is consensus here. I am sorry
15 we do not have more time, but -- I felt this would be an
16 interesting discussion that could go on for hours
17 literally, but I think there is some commonality in some
18 of the views. We have got a hell of a problem. The
19 solutions are not that unsolvable. I mean, I think we
20 can solve the problem, but it is going to take a
21 consensus that agrees first, accept we have a problem;
22 and secondly, that we have to do something about it, and
23 we have to have the will to do it.

24 The technology exists to make vast improvements.
25 We have heard several people speak of this. There are

1 concepts of how we can reorganize our energy structure
2 and seek solutions, better ways of doing things, more
3 efficient, and we have got to find ways to get people up
4 here on the Hill and elsewhere out in, you know, the
5 small communities of this country to buy into this
6 concept. From my perspective, look at small communities
7 around this country. I don't see a lot of willingness
8 to buy into it. The debate will go on. We have a great
9 panel here. You made great contributions to the
10 discussion, and thank you all very much.

11 (Applause.)

12 MR. SEESEL: I want to thank Orson and our
13 terrific panelists for that discussion. We are going to
14 be on a break now for about 10 or 12 minutes. We will
15 come back at 10:45 with a panel on our vulnerability to
16 supply and demand shocks.

17 (A brief recess was taken.)

18 MR. SALINGER: Well, we are going to start back
19 up again. I am Mike Salinger. I'm the Director of the
20 Bureau of Economics at the Federal Trade Commission, and
21 the panel we are about to have is a panel that is of
22 great importance to the Federal Trade Commission. I
23 think the question is whether we are more susceptible to
24 shocks than we have been in the past. This is a topic
25 that Congress is intensely interested in and insists

1 that we be intensely interested in. There are issues as
2 to whether inventories are lower than they used to be,
3 whether refining capacity is tighter than it used to be,
4 and whenever we see prices go up, we get questions as to
5 whether there is something amiss in the market.

6 So, we have a distinguished panel today to help
7 us understand these issues. We are going to start with
8 Tom Anderson. He is a vice president at the consulting
9 firm of Baker & O'Brien, which is a consulting firm that
10 specializes in the oil/gas/chemical and related
11 industries. He has extensive experience in these
12 industries. He's worked for Gulf, Mobil, Saudi Aramco
13 and Solomon Associates before moving to Baker & O'Brien,
14 and he spends a lot of his time modeling the energy
15 sector and our susceptibility to disruptions.

16 So, Tom, will you lead us off?

17 MR. ANDERSON: Good morning, and thanks,
18 Michael. I am going to be talking about some of the
19 vulnerabilities in the petroleum supply, distribution,
20 refining infrastructure, the system that takes crude
21 oil, once it comes above ground, and gets it to the
22 place where we all consume it. I will also talk about
23 some of the issues related to it, some of the
24 vulnerabilities. For the most part, what I am going to
25 offer is facts, not opinions. We do not want to get

1 into arguments, because studies is what we do, but there
2 are a lot of facts that can lead to a lot of discussion,
3 and that is what we hope to stimulate.

4 I guess one of the questions is, is why do we
5 say that the U.S. oil refining industry, distribution
6 industry, is vulnerable? Well, partly the vulnerability
7 has become from the evolution that has occurred over the
8 last -- really the last 30 years. About 30 years ago,
9 by the early 1980s, late seventies, there were over 300
10 refineries in the U.S., a lot of pipelines, a lot of
11 systems, and that has slowly diminished to go to just a
12 handful of refineries, fewer systems, bigger, more
13 complex, but very, very efficient, and this is one of
14 the things that the industry has become -- and we do our
15 studies, and we have watched it occur -- is that the
16 industry is very efficient in moving product from the
17 ports and from the well all the way to the customer.

18 Well, in making it efficient, it has made
19 facilities bigger, more complex, in a lot of ways
20 difficult to operate, but one of the things that it does
21 not lend itself to -- it is almost a conflicting
22 objective -- is the ability to respond very quickly,
23 very easily, to disruptions. By making the facilities
24 bigger, more complex, more clustered, it does make it
25 more difficult to respond, and it is some of the things

1 we saw with Katrina/Rita in a very small way. There are
2 issues that are much bigger than that.

3 I will go through a few of these points. The
4 refineries, why do we say the refineries are vulnerable?
5 Well, as I mentioned, there are about 130 or so
6 refineries in the U.S. today. Most of them are very,
7 very big, very complex, efficient, relatively --
8 compared to 30 years ago, the operating costs are lower,
9 the ability to produce product is higher, reliability is
10 higher, and they are very big, efficient machines, but
11 they do tend to be complex, clustered, they are
12 primarily in a few coastal locations, as I will show you
13 in a moment, and because of this, because they are in
14 central locations and have a few outlets for their
15 supply, it does tend to make them more vulnerable.

16 In addition to it, because the equipment is so
17 complex, a lot of it is manufactured at low-cost
18 operations outside the U.S. As an example, a lot of the
19 processing facilities have towers that have vessel walls
20 that are four inches to six inches thick. They operate
21 at 2500 pounds and at very high temperatures. Well, a
22 lot of that equipment is long lead time, takes a long
23 time to make, and for the most part it is made in Korea,
24 Japan, outside the U.S. Because it is a long ways away,
25 it is hard to get, and it means that if there is a

1 damage to one of these key facilities that are complex,
2 it takes a long time to get them replaced.

3 This kind of makes the point of the 130 or so
4 refineries in the U.S., as you can see, the bulk of them
5 are on what we call PADD III, that is the designations
6 from World War II of the allocation districts,
7 administration districts, rather, and there are five
8 districts in the U.S. PADD III, which is really Texas,
9 Louisiana, and the Mississippi Coast, is where the bulk
10 of the refineries are, and if you see, they are not just
11 the bulk of them; they are the big ones.

12 The triangles, the red triangles, show the large
13 refineries, here we designate as over 175,000 barrels a
14 day. Actually many of them are over 200,000 barrels a
15 day. Green are small, which you can see are clustered
16 in the port areas, and along PADD III on the coast, up
17 along the Delaware River in New Jersey, up along the
18 Puget Sound, which is where we get a lot of Alaskan
19 crude, San Francisco and LA. There is only one that we
20 would call a cluster that is inland, and that is really
21 Chicago. Other than that, they are pretty much
22 scattered around the U.S. In doing it, the U.S. has
23 concentrated a lot of refineries in a small area, and as
24 a result, well, we are dependent on a few key access
25 points to get in crude and to get product out.

1 I mentioned getting in crude. Ports are
2 congested. There is only a handful of places to get the
3 crude in. As I mentioned, coming into Houston, there is
4 the Houston Ship Channel; Port Arthur, there is the
5 Sabine Channel; at Lake Charles, there's the Calcasieu
6 River; the Delaware River on the East Coast. There are
7 a handful of places to get crude in, and product -- and
8 realizing, also, that while we import about 10 million
9 barrels a day of crude, we also import almost 2 million
10 barrels a day of product. Product moves in, comes into
11 ports.

12 What is shown here is Port Everglades Port. It
13 is very congested. This is basically the supply for all
14 of South Florida. It comes all in through here by boat,
15 some from the Gulf Coast, some from overseas. The
16 products come in here, go, and they are -- for most of
17 the companies that are operate out of this, the
18 terminals are all pretty much and the tankage is all
19 pretty much in one area. Because it is clustered and
20 because land is limited, as throughput has gone up,
21 populations have swelled, tankage has not been able to
22 keep up. So, with the efficiency of operations -- and
23 they are very efficient -- it just means days of
24 inventory in many of the tank terminals around the U.S.
25 has gotten -- has grown down -- grown smaller.

1 I mentioned crude oil imports. This is
2 basically where they come in. Right now we are
3 importing over 10 million barrels a day of crude. The
4 bulk of it comes into the U.S. Gulf Coast, and then some
5 of it goes up to the Midwest for further processing in
6 those refineries. A lot of crude comes down from
7 Canada, of course, but then there is crude that has come
8 up from the Delaware River, Los Angeles, San Francisco,
9 and Puget Sound. Basically, as you can see, there are
10 only a few access points for crude, and this is
11 basically where they are.

12 I mentioned that inventories have been declining
13 over the last 15 or so years as refineries have gotten
14 efficient. So have the terminals, due to computer
15 operations, a lot of monitoring of systems, and we are
16 able to operate the terminals efficiently. Well, crude
17 oil inventory, including the strategic petroleum
18 reserve, is really about a two-month supply. It is kind
19 of gone down a little bit, back up, but it really has
20 not changed much since 990. It is still about two
21 months supply.

22 Heating oil, which has -- emergency heating oil
23 supplies in the east, has been, over the last 15 years,
24 it has gone from about 40 days of supply now down to
25 about 30 days of supply. In other words, it has

1 declined about 20 percent.

2 Gasoline, it is even more critical. Gasoline
3 was about 25 days of supply 15 years ago, and today it
4 is down to two weeks, 15 days or so, and that is over a
5 40 percent decline in the days of inventory available
6 for gasoline nationally. At individual terminals, some
7 places it is more, some places it is less, but this is
8 on average through the U.S.

9 The other problem or issue, rather, with
10 gasoline is that while I mentioned that there is a lot
11 of gasoline that comes into the U.S., almost 2 million
12 barrels a day, a lot of it goes up -- sorry, petroleum
13 products brought in, that includes gasoline and
14 distillate, the bulk of it is gasoline, and the bulk of
15 that goes into the East Coast. This graph kind of shows
16 part of the problem, part of the issue.

17 If you see the green, the green really
18 represents kind of our stable supply from Central South
19 America, Canada, and it does come in, it is relatively
20 close. A disruption is something that can be easily
21 accessed from relatively near-term sources.

22 However, with the advent of the boutique fuels,
23 fuels that are more difficult to make, ultra low sulfur
24 gasoline, more of the gasoline is coming from Europe.
25 That is the real increase, and the problem there is

1 getting gasoline from Europe is at least two weeks away;
2 depending on the total time to get it, load it, bring it
3 in, probably three weeks away. As we saw during
4 Katrina, when we got a lot of gasoline in from Europe to
5 help make up our shortfalls, there is about a two to
6 three-week lag between starting products from Europe and
7 actually getting them into the U.S. system, and this is
8 growing.

9 It is going to be more as you look ahead because
10 of the limited growth in capacity of refineries while
11 demand is still growing about 1 percent a year in the
12 U.S., about the same rate as inflation. More and more
13 imports are going to have to be coming in from overseas,
14 from Europe.

15 Pipelines, as you will see in a minute, they are
16 the critical link in getting product up particularly the
17 East Coast but also the Midwest. They are the pinch
18 points. What is shown in this picture is Colonial
19 Pipeline pump station. As you can see, it is pretty
20 much out in the middle of nowhere. This is the main
21 feeder line that feeds all of the East Coast up through
22 Washington, D.C.

23 Now, I mention they are pinch points not because
24 of the pipelines. Pipelines themselves are very easy to
25 replace, to repair, in a matter of days. The problem is

1 the pump stations and the manifolding and the control
2 systems that go with them. The pumps are -- as in
3 refineries, they are highly complex, very efficient,
4 they are big, they are -- in a lot of cases, they are
5 manufactured outside the U.S., and then the manifolding
6 that goes with it is unique, it goes with specific
7 stations. It is not something you can go down to
8 Wal-Mart and get. So, damage to these can cause real
9 problems.

10 I will mention that the vulnerability is both
11 natural disasters and terrorism. I will mention that
12 because I am not sure many of you know, but the EPA and
13 the Coast Guard, several of the agencies, are running an
14 exercise this summer related to the New Madras
15 earthquake up in Southern Missouri. It is the one that
16 erupted in the early 1800s, was really bad. Nobody or
17 very few people in the area, the Mississippi River
18 flowed backwards were several days, and it was really
19 bad, but it has not erupted since then.

20 Well, according to the USGS -- and this is all
21 out on their web site, it is all public -- the
22 incidences of vibrations have been growing, and it has
23 been getting closer, and now there is a lot of concern
24 that we are getting close, within the next 20 years, to
25 a major eruption of the New Madrid earthquake, which if

1 it goes, it is going to take out a lot of pipelines that
2 go particularly up to the Midwest, possibly even to the
3 East Coast.

4 That is a natural disaster totally different
5 than Katrina/Rita, and for a lot of reasons, it is far
6 worse, and the reason is, there is only a handful of
7 pipelines going up to the East Coast and to the Midwest.
8 There is lots of refineries supplying, but only a few
9 pipelines, and, again, the pump stations and equipment
10 is manufactured out of the U.S.

11 This kind of shows it. You can see Southern
12 Missouri where New Madrid earthquake would be, and it
13 runs a long distance vertically up and down. Going to
14 the Midwest, there is -- about 700,000 barrels a day
15 goes up towards Chicago and the Midwest on the three
16 pipelines shown; however, if you look to the East Coast,
17 there is two lines, Colonial and Plantation. They pump
18 about 2.7 or almost 3 million barrels a day up to the
19 East Coast. That is virtually the only supply of
20 product from Atlanta all the way up through D.C. There
21 is no refineries.

22 I mentioned a few years ago, 30 years ago, there
23 was a lot more refineries. Well, guess what? Those are
24 gone. This is the supply in that area. Other than a
25 few refineries, virtually all the supply from Atlanta

1 through D.C. goes through these two pipelines. Anything
2 happens to them, there is no way to easily resupply.
3 Trucking is not an answer. Pipelines can be replaced.
4 It is the pump stations that are a real problem.

5 Just to illustrate how this works, the reason
6 pipelines are a problem, refineries supply products into
7 the various lines at various points. Going down the
8 line, as they move up towards the East Coast or Midwest,
9 they take product out in terminals, and they do it in a
10 very sophisticated way. It is very efficient. All the
11 companies basically work together that are putting in
12 product, taking out product, to run in batches. So,
13 there would be batches of jet fuel, gasoline, heating
14 oil, et cetera. Multiple companies go in, they are
15 commodity products, and they move the product together,
16 and they move up the line at about the pace that you can
17 walk, a brisk walk, about three, five, eight miles per
18 hour.

19 They do this in a way -- and it is a very
20 sophisticated, controlled system -- so that product can
21 be broken out at the different terminals, filled up.
22 How does this work? Well, the refineries -- the
23 terminals, rather, that break out all along the way have
24 a part that is called a tank heel, which is unusable.
25 It is material that -- the tanks have floating roofs.

1 You cannot get down below the floating roof. There is a
2 safety stock, there is an operating capacity, which is
3 in blue, and there is head room, which you do not go
4 above because of spills, okay?

5 The way it works is this, is that the terminals,
6 as -- they will time so that they are very close to
7 being empty about the time that the product batches
8 arrive. They fill up, they work another five to seven
9 days bringing this product down, then they fill up
10 again, and the cycle starts again.

11 Well, what this means is, is if a disruption
12 occurs on a particular product that is near a point of
13 empty, then that area is out of gasoline or diesel or
14 whatever it is almost immediately. Even if you have
15 product that was just filled, say part of the product is
16 just filled, you have maybe a week's worth of supply.
17 If it is something that is near empty, you are basically
18 empty.

19 Now, what does this mean? Well, there are
20 risks, and I mentioned there are a lot of risks up and
21 down the system, from crude coming in to pipelines going
22 out; however, as we learned in Katrina/Rita, pipelines
23 are probably more critical than refineries. There is a
24 lot of refineries. There is roughly 33-34 refineries on
25 the Gulf Coast. One, two, three can be knocked out,

1 other things can be supplied, more product can come in
2 from Europe, various things can happen, but for these
3 cities, from Birmingham to Atlanta, all the way up to
4 D.C., there is no other alternative. There is no way
5 you can get in ships. You cannot possibly get in enough
6 trucks to supply them. This is the risk, is for these
7 cities, probably -- in our view, probably the most
8 significant risk.

9 What does it mean? It means for a lot of places
10 and a lot of products, you are going to be out of
11 product very quickly, whether through terrorism or
12 natural disasters, and in this case, a natural disaster,
13 primarily thinking of the New Madrid earthquake. There
14 are not alternative supplies that could easily be
15 brought in. If it is pumps that are damaged in the pump
16 stations, it will take months, weeks and months to
17 replace them, not a matter of hours or days. The piping
18 itself, the pipelines themselves, can be replaced in a
19 matter of days, but not the pump stations. What it
20 means is that fuel would have to be made available only
21 probably to emergency fuel. It is going to mean there
22 is a lot of people out of work and a lot of people
23 stranded.

24 In summary, what are we saying? Well, it is a
25 very efficient, very well-organized, very complex

1 system, from refineries all the way through the
2 distribution terminals, but it has not evolved for
3 security. It has evolved for efficiency. Starting with
4 the refineries, which are very, large, complex, but
5 clustered, clustered so that they all have common -- a
6 handful of common supply lines for crude, through
7 channels, and product going out through a few of the
8 pipelines up to the Midwest and East.

9 The major pipelines are a critical link.
10 Without them, it is virtually impossible to quickly
11 respond. Also, at the same time, because of efficiency
12 in operating terminals, there is less inventory in days
13 of inventory available than there would have been maybe
14 30 years ago. The result is, say, these are some of the
15 facts that we gather, and our firm, by the way, does a
16 lot of studies, and these are things we have come across
17 in the various studies we have done over the years, is
18 that there is a lot of vulnerability in the system.

19 There is things that can be done. It is not
20 hopeless, but it does take study, it is going to take
21 effort, take time, and take cooperation between
22 government and industry to start developing some of the
23 solutions.

24 That is my part, and I thank you very much, and
25 I presume we will wait for questions at the end?

1 MR. SALINGER: Yes.

2 MR. ANDERSON: Okay.

3 MR. SALINGER: Well, thank you.

4 There used to be a writer for Sports Illustrated
5 named Pete Axthelm, who I heard in a presentation in
6 college, and someone asked him, to understand an
7 industry, "You have to -- to understand a sport, you
8 have to play it," and he said, "No, you have to bet on
9 it," and so in that regard, when we were trying to
10 understand our susceptibility to risk, I thought it
11 would be really important to have representatives from
12 companies that bet on these risks.

13 So, we are very lucky today to have Bob Percopo
14 from AIG Global Marine and Energy with us, the senior
15 vice president of investments at AIG. He has been at
16 AIG since 1998. He has 30 years of experience in the
17 energy industry. Previously, he worked at a bank in Dos
18 Suez, Mobil, and Manufacturers Hanover. So, Bob.

19 MR. PERCOPO: Thanks, Mike.

20 What Michael did not say is his brother also
21 runs political risk for AIG and does an excellent job.

22 Before I get started, what I want to do is go
23 through a broad-brush approach to most of the issues
24 that were raised and then come back on questions and
25 answers on specifics based on the level of interest of

1 the audience. In order to put my comments -- and my
2 comments are going to be more opinion than statistics,
3 as most of the previous speakers were focused, and in
4 order to do that, I would like to give you a quick
5 run-down on AIG, and this is not a puff piece for AIG.
6 It is just that we are a major player in the energy
7 sector.

8 We are probably the largest insurer in that
9 sector, and being the largest insurer, the technical
10 capabilities that we have go far beyond what is normally
11 available in the marketplace. We need this just to
12 maintain an acceptable risk profile and keep the profits
13 rolling in.

14 We are the largest private sector writer of
15 political risk insurance which gives us good knowledge
16 of what is going on throughout the world. We operate in
17 anywhere from 130 countries and territories on up at any
18 point in time, and we have at-risk positions. We take
19 risk.

20 We also have an investment portfolio that most
21 people do not realize that is just under three-quarters
22 of a trillion dollars, which makes us larger than most
23 of the commercial banks operating around the world. Of
24 that, about \$250 billion are invested in the energy
25 industry.

1 We also own about 7000 megawatts of generating
2 capacity through the private equity side. We own
3 pipelines, gas storage facilities. We also have no
4 problem in financing against reserves and the grant of
5 VPPs.

6 Let's get back to the topic now, and are we more
7 vulnerable now to shocks in supply and demand? Without
8 question. Can we do anything about it? Yes. Are we
9 doing everything we can about it? Absolutely not.

10 Let's start out with long supply lines. The
11 problem is that the production areas of the world for
12 energy and fossil fuels tends to be distant from the
13 consumption points. Shortages seem to be more of a
14 logistic and manipulation issue than a pure supply
15 shortage issue. Pipelines are choke points and
16 potential terrorist targets -- I guess I better catch up
17 on the slides -- terrorist targets. Forty percent of
18 the world's oil flows through pipelines.

19 Geology and geography are also factors, with
20 about 4000 tankers sailing the world's oceans; 25
21 percent of the world's trade passes through the Straits
22 of Malacca, including half of the sea shipments of oil
23 bound for East Asia and two-thirds of the global LNG.
24 New security threats are directly affecting oil prices,
25 as we have all seen, especially over the last two years.

1 Maritime insurance has already sharply increased
2 premiums for tankers operating in risky waters.

3 A quarter of the world's known reserves are
4 controlled by Saudi Arabia. Saudi Arabia's oil
5 infrastructure is highly vulnerable to terrorist
6 attacks. About two-thirds of Saudi Arabia's crude is
7 processed at a single facility, Abqaiq. On the Persian
8 Gulf, Saudi Arabia has just two primary oil export
9 terminals, Ras Tanura and Ras Aljamiah. An attack on
10 Rastanora or Abqaiq could take up to 50 percent of Saudi
11 oil off the market for at least six months and with it
12 the world's spare capacity.

13 A number of other speakers have spoken about
14 spare capacity, and I think only one speaker in the last
15 three days has raised the Anwar Shelf. At current
16 prices for oil -- and once oil went above \$30 a
17 barrel -- Anwar is capable of producing 2 million
18 barrels a day for a period of 25 years, which could
19 certainly add to the reserve capacity in the world,
20 which depending on who you are talking to is anywhere
21 from 2 million barrels -- a million and a half barrels
22 up to about 3 and a half million barrels a day. So,
23 that one thing that if we wanted to move, we could do
24 it.

25 The environmentalists will probably attack me as

1 soon as I walk out of here, but let's keep in mind what
2 happens at least in the U.S. E&P industry. When you
3 have an offshore well and the offshore well becomes
4 noneconomically viable and it gets shut down, that has
5 to be dealt with. You either cart it away, turn it into
6 a reef program if you get approval for it, and my guess
7 is, if the Anwar Shelf goes into production, by the time
8 you remove a well, you will never know it existed. It
9 is not like an above-ground pipeline.

10 Let's continue with the terrorism issue. In
11 addition to the Straits of Malacca, when you factor in
12 the Straits of Hormuz and Balo Mandad, over 60 percent
13 of the world's oil is shipped through these choke
14 points. U.S. pipelines are also vulnerable. The only
15 route to deliver oil from Alaska is the 800-mile-long
16 Trans-Alaska Pipeline System. In recent years, the
17 pipeline has been sabotaged, bombed twice, and shot at
18 more than 50 times. That may just be hunters with
19 target practice, but it happens.

20 An attack on a major oil installation, a choke
21 point, or a pipeline hub would be detrimental to
22 America's economy and likely affect every aspect of our
23 lives. During the 1973 Arab oil embargo, when we only
24 imported 28 percent of U.S. oil, the effects on the U.S.
25 economy were oil prices quadrupled in a matter of weeks.

1 Unemployment doubled due to the loss of 500,000 jobs.
2 The GMP declined 6 percent. Not a pretty picture.

3 Is there an offset to the Middle East
4 volatility? Well, yes and no, if you want to depend on
5 Russia. Russia right now, their sustainable oil
6 production has been increasing. They soon expect
7 forecasts to be able to sustain production in excess of
8 Saudi Arabia. In general, when OPEC has restricted
9 output, Russia has continued, but there is a method to
10 their madness. From everything we see and everything we
11 read, they are basically interested in maximizing oil
12 revenues to regain super power status, an occasional
13 muscle-flexing that Europe has not exactly helped.

14 Examples of that were about 15 months ago,
15 Russia shut the gas line down into the Ukraine. More
16 recently, about four months ago, they shut down an oil
17 line into Belarus. The interesting thing here was the
18 European reaction. Three years ago, Europe co-existed
19 with Russia, and they did not care. After the gas line
20 was shut down into the Ukraine, the Russian -- the
21 European reaction was panic. Angela Merkel, the
22 Chancellor of Germany, who was brought in on a no
23 nuclear ticket, the greens brought her in, did not even
24 want to hear about nuclear power. As soon as Russia
25 shut the gas line down into the Ukraine, she turned

1 around and said, "We must look at all options, including
2 nuclear power."

3 Now, as the president, I guess the six-month
4 president of the European Union, and in tandem with when
5 the gas line was shut down or the oil line was shut down
6 going into Belarus, she has become a very strong nuclear
7 advocate, and I think you are going to see more of that
8 happening in Europe. Europe has another issue that they
9 have got to deal with, and that is the steep decline in
10 oil and gas production coming out of the North Sea.

11 But there is nothing really new in anything I
12 have said. We have lived with these situations for
13 years now. What I would like to do is come back and
14 focus on the U.S. and see how vulnerable we are to
15 short-term swings. If you look at 2005, pre Katrina and
16 Rita, we had gasoline prices that were running up, and
17 my theory is gasoline prices always run up just before
18 the Labor Day weekend. It is the last big shot of the
19 summer. The oil companies go out and try to test demand
20 elasticity or price elasticity.

21 The original reason given for the price run-up
22 was supply shortages. Saudi Arabia immediately turned
23 around and agreed to raise oil production by 1.5 million
24 barrels a day, taking them up from 10 million to 11.5,
25 which is deemed to be their sustainable production

1 levels. They had it out there for several weeks. They
2 withdrew the offer. The reason? Nobody was taking it.
3 So, I guess we really did not have a crude shortage.

4 Oil companies countered and came back and said,
5 "No, no, it is not the crude issue. It is insufficient
6 refining capacity." Okay, let's buy that for a minute.
7 And keep in mind at this time we had a couple of issues
8 that were going on. The Iraq War, which just keeps on
9 going; the Iranian embargo; the social unrest in Nigeria
10 and the reduction in production coming out of Nigeria;
11 Venezuela had come off a series of strikes that reduced
12 oil production down from 2.6 million barrels a day down
13 to 25,000 million barrels a day; Mexico is coming to
14 grips with the fact that it just does not have the
15 technical capability to develop and extract from deep
16 shore wells in the Gulf of Mexico. Still, oil prices
17 continued up, but this time it was the fear of potential
18 capacity coming offline due to hurricanes. Remember,
19 this is just before Rita and Katrina hit.

20 Well, then Rita and Katrina did hit. Ninety
21 percent of crude production and 72 percent of natural
22 gas production went offline in the Gulf of Mexico. Now,
23 part of it was platform damage, part of it was on-shore
24 refinery damage, and a lot of it was pipelines, the
25 interconnects actually moving the fuels onshore.

1 Twenty-eight percent of the refining capacity offline on
2 top of what we were looking at on the crude
3 interruptions.

4 What was the result? How many people in this
5 room saw no gasoline available at gasoline stations?
6 Virtually nobody. The only gas stations that were not
7 pumping were gas stations that were offline because the
8 electricity was not there to operate the pumps. So, do
9 we have real big problems? We have got problems, but I
10 think the problems are further out in the future. The
11 world, at the end of the day, is dealing with a system
12 that is either in balance or it has a slight surplus. A
13 dollar's worth of oil or a barrel of oil, whether it
14 comes from Iran, Iraq, Saudi Arabia, Gulf Coast U.S.,
15 Anwar Shelf, it is still a barrel of oil.

16 DOE, in conversations I have had with them when
17 the Iraq War was really starting to get going, they
18 said, "Well, look, what would happen if Iraq came
19 offline, if production went to zero?" Well, a conflict
20 like that, taking production out of adequate capacity,
21 is a problem, but when you have an Iranian situation and
22 we embargo Iran, we cannot buy their crude, are they
23 going to sit there with their crude? They are going to
24 sell it to somebody else. So, we have got a system,
25 whether we like it or not, that has a self-balancing

1 mechanism. Everybody wants the dollars. The terrorists
2 like to interrupt it, and the issue was raised earlier
3 with Saudi Arabia.

4 Saudi Arabia on the one hand is funding
5 terrorists, and on the other hand, they are our friends.
6 Well, they are their own friends. They have promised
7 the religious sects in their country everything under
8 the sun, free healthcare, those education to those that
9 want it. At the end of the day, they have to keep
10 delivering these. If they stop delivering them, the
11 royal family would cease to control the kingdom. So,
12 when you look at the system that we have, we really do
13 have pretty much a self-regulating system, but we are
14 dealing with resources that ultimately are -- that are
15 in decline.

16 I would just like to move on to -- whoops, I
17 will get this straight.

18 One of the next issues was LNG storage,
19 consequences of not building LNG storage. Well, LNG is
20 a supply line issue. You need gas, you need
21 liquefaction, you need specialty tankers to ship, you
22 need regasification facilities. Whether we have
23 insufficient storage or not, whatever the -- each one of
24 the components are critical links in the chain. We have
25 to have the entire chain. But in order to understand

1 the dynamics of LNG, let's go back into the 1980s and
2 the 1990s when the U.S. bent over backwards, as did
3 Western Europe, and built enormous amounts of generating
4 capacity that was gas-fired, and the reasons for
5 building it was it was deemed to be environmentally
6 friendly, less carbon-emitting; gas was reasonably
7 priced, well, that went out the window; gas would always
8 be readily available, not another safe bet.

9 The reality is gas plants were built because you
10 could build them fast and you could get cash flow out of
11 them, and with the movement into independent power
12 producers, these developers wanted to get in, make their
13 money, and keep moving.

14 We still have carbon emissions from gas. The
15 big issue with gas and gas-generating capacity is when
16 you get over \$4.50 per million cubic feet, gas is not
17 economically viable. If you look at LNG, because of the
18 extra handling costs, the extra delivery costs of LNG,
19 its operating margin, its economic operating margin, is
20 narrower than natural gas. If natural gas prices itself
21 out of the market, LNG prices itself out of the market.

22 There has been a fall-off in interest in LNG,
23 and that was exemplified by the fall-off in LNG tanker
24 orders. The weakest link in the chain was deemed to be
25 the transportation side. There was a flurry of activity

1 to build LNG tankers, and then that interest just fell
2 off, and it has been flat since last summer.

3 One other thing that has to be focused on if you
4 want to look at gas and you want to look at LNG, you
5 have to keep focus on what is going on on the nuclear
6 side of the equation. The more nuclear capacity that is
7 built -- and if you look at the forecast, China looking
8 to build 43 nuclear plants, they have already let
9 contracts on four; India is going to build 25 plants;
10 Japan has to build 20 nuclear plants just to keep
11 nuclear -- just to balance out their carbon emissions
12 from their coal plants; Britain has to build 23 nuclear
13 plants just to keep nuclear as the same percentage of
14 its generating capacity that it has now; Brazil has
15 reactivated their nuclear program; Bulgaria has
16 reactivated their nuclear program. Every megawatt of
17 capacity coming on on the nuclear side is going to
18 decrease the demand for natural gas, and by extension,
19 the demand for LNG.

20 Let's take a quick look at biofuels, and I know
21 a number of people have gone through biofuels ad
22 nauseam. I was kind of neutral on ethanol. We would
23 not take price risk on ethanol simply because the people
24 who know the market didn't want to take that price risk.
25 The technology is not an issue. It is a fermentation

1 process. Transportation, this could be a logistical
2 nightmare. We are willing to work with that, but I do
3 not want to have a price risk. I do not want to be in
4 the same position that power producers were in in 2001
5 when they started building merchant generating capacity
6 and then found out they had nobody to sell it to. I
7 want somebody who knows the market to take that risk.

8 There have been a lot of plants built, most of
9 them have been done on balance sheet. The few that have
10 been done on stand-alone or a project finance basis,
11 limited recourse basis, are the ones that are going to
12 have problems.

13 One of the things that I have not heard most of
14 the speakers deal with are the specific problems with
15 ethanol. You have got phase separation, and that, for
16 the people who do not understand it, and mine is just
17 what I read, is you wind up with water, ethanol,
18 gasoline, in a stack, in a layering, and that is one of
19 the reasons why you have to splash-blend ethanol. You
20 have got to blend it just before the point of
21 consumption or the point at where it is put into the
22 vehicles. It is corrosive. It is a solvent.

23 So, if you have got a car that is ten years old
24 or five years old, you get a sediment that builds up in
25 the bottom of the tank, that sediment gets broken down

1 by ethanol. It gets fed in through the carburation
2 system, through the injector system, clogs the
3 injectors, creates problems, has an affinity for
4 moisture, does not make it a good play in cold
5 environments -- fortunately, most of Brazil is warm --
6 and it is not pipeline friendly.

7 If you think of the logistical nightmare, if we
8 do ever get to E-85 on a significant basis, you are
9 going to have to move a lot of ethanol around. You
10 cannot move it in pipelines. To a limited degree, you
11 can move it in rail systems. You are still going to
12 have to use trucks. You better be running the trucks on
13 something other than diesel fuel or we are not going to
14 be solving a problem. We will be able to extend the
15 fuel sources we have, but we are going to have to deal
16 with environmental issues that are then going to be
17 fairly significant.

18 Let's get into corn-based ethanol very briefly.
19 Corn is already creating problems. Ethanol had driven
20 corn demand to significantly increase the prices of
21 corn, beef, pork, chicken. Last week, for the holidays,
22 most people expect, or in general, egg prices drop to
23 attract more shoppers into the store to buy more food.
24 Well, this year, for the first time, because of the
25 increased cost of chicken feed, corn, egg prices went up

1 by 25 percent.

2 So much U.S. corn production is going to ethanol
3 production that the food producers in the United States
4 are turning to Mexico and buying corn from Mexico.
5 Guess what's happening? Corn is a staple in Mexico.
6 The general population in Mexico is not very happy, and
7 that is creating other problems that we have to deal
8 with. One last point on ethanol, when we do get to
9 cellulosic ethanol -- and depending on who you talk to,
10 it is either two years away, five years away, eight
11 years away -- as soon as you go to cellulosic ethanol,
12 you essentially render all the grain-based ethanol
13 plants economically obsolete.

14 Two weeks ago, I kind of liked biodiesel, a
15 simple process, you squeeze oil. Well, most of the
16 biodiesel is palm-based, palm oil-based. There is a
17 study that came out last week that most of the palm oil
18 comes from Malaysia and Indonesia. Guess how they
19 develop cultivatable plots? They burn off the rain
20 forest.

21 The burn-off of the rain forest in Malaysia and
22 Indonesia adds 1.4 million tons of carbon into the
23 atmosphere a year. Then when you cultivate the plots,
24 essentially what you are doing is draining swamps. You
25 are allowing carbon to escape that's been buried for a

1 millennium, another 600 million tons. Between the two,
2 you have 2 billion tons of carbon being released into
3 the atmosphere, which is roughly 8 percent of the
4 total -- it is 8 percent of the total fossil fuels
5 emissions of carbon, not a pretty sight.

6 We have got to do something, and I think some of
7 these issues are going to be interim solutions, but
8 eventually we have got to get to a point where we can
9 improve what we do. We have got to change what we are
10 doing.

11 I am probably coming close to running out of
12 time, so I will skip over transmission and distribution,
13 because I want to get to something that we can actually
14 do something about, and that is the nuclear side. As a
15 company, we have looked at the safety record. We have
16 looked at the capital costs, which compare very
17 favorably to gas, coal. When you get into clean coal,
18 clean coal is astronomically more expensive than
19 nuclear. On the operating expense side, nuclear is
20 about 3 cents per kilowatt hour. Gas is about 4.7 cents
21 per kilowatt hour. Coal, existing coal with existing
22 technology, is about 2.7 cents, but that is not
23 factoring in any restrictions on carbon emissions. When
24 you factor that in, you are up to about 3.6 cents.

25 On the nuclear side, you are dealing with fuel

1 rods, you're dealing with decommissioning costs, so the
2 nuclear side is an all-in. The political stability of
3 fuel sources on nuclear, the bulk of it comes from
4 Canada and Australia. Nice, stable places to do
5 business with. We produce it here. But the big thing
6 is zero carbon emissions.

7 Now, the rest of the world, as I mentioned
8 earlier, is moving on the nuclear side. The U.S. -- and
9 I have had conversation after conversation with DOE,
10 people on the Republican side, the Democratic side. It
11 is amazing that we are not moving more quickly. The
12 problem we have logistically in the world is there are
13 four reactor manufacturers with approved technologies.
14 There is one manufacturer of specialty steel in Japan,
15 and as I mentioned, with the China build, with India,
16 with Japan, with what is going on in the rest of the
17 world -- and I have made this statement to the DOE -- by
18 the time we wake up and realize we do not have a choice,
19 we have to build more nuclear capacity, look how long
20 the queue is going to be to get the reactors and to get
21 the specialty steel.

22 I am a strong advocate of taking this out of the
23 political arena, have both sides join together and push
24 this, push it off to the side as an issue, and let's
25 deal with something that we can deal with. We have even

1 offered -- the U.S. Department of Energy has the ability
2 to guarantee 80 percent of an energy project's costs --
3 to guarantee 80 percent of a project's costs. We said,
4 look, what we are willing to look at doing is fund 100
5 percent of the debt on up to five nuclear new builds in
6 the United States, and we are looking at an 80/20
7 leverage. So, 20 percent equity, 80 percent debt, we
8 will look at putting up the debt. That drops DOE's
9 guaranteed position from 80 percent to 64 percent, and
10 we think that this is a matter of energy independence
11 and energy security.

12 So, we think the Government should take a
13 significant portion of the risk, we are willing to take
14 the risk, and obviously the equity investor should be
15 taking the risk, because they are going to get the
16 returns. The reaction was, well, we think that because
17 the technology is known, it is a necessary commodity,
18 electricity, that the Government should not have to take
19 a position in that.

20 Well, one of the reasons why everybody is
21 looking for government support is although they came up
22 with the construction and operating license in one
23 unit -- in the past, you got your construction license,
24 you built the facility, then you went through the
25 process again to get an operating license, and that is

1 what pushed a program that should take five years out
2 into the ten-year range before you could bring a reactor
3 online. Nobody wants to take the risk that even with
4 the new process, where you apply for your construction
5 license, you meet objective criteria, you have your
6 operating license, what is to say that somebody is not
7 going to interfere with that process and prolong it?

8 When asked how much time they think they could
9 cut off the time from application for a permit to the
10 in-service of a reactor, they said, "Oh, we can beat the
11 historical," and historically, in the United States, it
12 is been ten years. They can take it all the way down to
13 nine and a half years. I had no other reaction other
14 than to laugh. I said, "Do you people read what comes
15 out in the press? China has categorically stated five
16 and a half years from the application for a permit to
17 the in-service date of a reactor," and they will do it.
18 I do not know if I want to take the risk on those, but
19 they will do it. We certainly can do it.

20 With that, I will turn it over to the next
21 speaker.

22 MR. SALINGER: Okay, thank you.

23 Our next speaker is Diana Moss. Diana is the
24 vice president of the American Antitrust Institute where
25 she has been since 2001. Prior to that, she was a

1 Senior Economist and Coordinator For Competition
2 Analysis at FERC, where she was from 1989 to 1994, and
3 she has also worked at the consulting firms NERA and
4 Putnam, Hayes & Bartlett.

5 MS. MOSS: Thanks, Michael, and thanks to the
6 FTC and the FTC staff and Commission and John Seesel for
7 inviting me here today to speak on energy vulnerability.

8 For those of you who do not know AAI, just very
9 briefly, we are a nonprofit organization based here in
10 Washington, D.C. We have been around for almost ten
11 years now. We are an independent voice in antitrust, in
12 competition policy. We produce research. We advocate.
13 We are not lobbyists. We do extensive training and
14 public education on competition policy issues with a
15 mission to promote fair competition in the American
16 economy.

17 Officially, I head up the energy practice area
18 at AAI, but I also do other things in other areas of
19 antitrust and regulation. I actually turned down the
20 job of moderating the electricity panel from yesterday
21 to speak on this panel, and I am glad I did that,
22 because it gives me the opportunity to speak to two
23 things that I have worked in quite extensively during my
24 career, electricity and petroleum, but also to share
25 some thoughts and some perspectives and insights on how

1 these two sectors, from an infrastructure perspective,
2 really are quite similar and what we might be able to
3 learn from comparisons between the two.

4 So, I really want to just talk about four
5 things. I want to talk about, as an economist,
6 approaches to assessing vulnerability. This would be
7 from a long-term adequacy perspective, matching supply
8 and demand, making sure that things are balanced in the
9 long run. Also, the short-run concept or the short-run
10 ability to withstand shocks to the system. So, all
11 through these four points, I want to draw some
12 comparisons and contrasts between the two energy
13 sources.

14 I want to talk about indicators of
15 vulnerability, looking at it, again, from the long-term
16 infrastructure investment, looking at capacity
17 utilization issues, also looking at congestion and
18 outages as a very high-profile indicator of
19 vulnerability. Then I want to talk about some of the
20 underlying factors associated with vulnerability,
21 restructuring in industries, primarily from a regulatory
22 policy standpoint or changing environmental factors and
23 resource factors. I want to talk about worsening
24 bottlenecks that we see in electricity transmission and
25 in petroleum refining, and there are, indeed, bottleneck

1 segments of these very long, vertically integrated
2 supply chains. Then I want to talk about market
3 structure and M&A.

4 I am trying to be true to the topic here today
5 on this panel, which is vulnerability, and I could
6 easily fit the whole market structure and mergers and
7 acquisitions part of this into a vulnerability context,
8 but it might even be worth it to break it out separately
9 to talk about how mergers and acquisitions and price
10 effects and effects on market structure and concerns
11 about competitive or anticompetitive behavior really is
12 another form of vulnerability that this Commission
13 obviously spends quite a bit of time dealing with.

14 Then I want to conclude with issues that are
15 worth more scrutiny, just looking harder and closer at,
16 but also issues that are really worth more study in
17 terms of generating new analysis and new ideas.

18 All right, so, the first topic is really
19 approaching the whole vulnerability issue. One is this
20 long-term concept of matching supply and demand. Is
21 there enough stuff, enough capacity built to meet
22 growing demand over time?

23 If you cast about for indicators of whether
24 there is a mismatch or not, you might go first to
25 capacity utilization. If capacity utilization is very

1 high, then you are pressing on the bounds of capacity
2 constraints, and that might signal the need for
3 additional capacity, new investment. If capacity
4 utilization is very low, that might signal that there is
5 an overhang, a capacity overhang. The problem with
6 electricity in particular -- and petroleum to some
7 extent -- is that demand is very time-sensitive. It
8 varies over the course of a load cycle, over the course
9 of seasons, there are weather variations. So, dealing
10 with this long-term adequacy concept is a bit tricky.

11 Well, how would you measure it? Well, you would
12 probably look first to investment in infrastructure as a
13 possible measure for this long-term adequacy issue. On
14 the short-term side, we have got ability to withstand
15 short-term shocks. Now, obviously, this is a function
16 of longer term adequacy. If capacity utilization is
17 very high, then the system is more prone to becoming
18 congested, and thus, there will be price volatility,
19 outages, congestion, whatever metrics or measures you
20 choose to measure short-term shocks, and there are a
21 bunch of different measures. I mean, I could stand up
22 here all day and talk about measures of short-term
23 vulnerability.

24 This is all aside from the whole price
25 volatility issue which has been exhaustively explored

1 and witnessed and validated in both of these industries,
2 refining and electricity transmission. There has been a
3 tremendous amount of study done on the petroleum side on
4 this concept of price asymmetry, which is the tendency
5 for gasoline prices to rise faster when crude oil prices
6 are on the rise and to fall at a slower rate when they
7 are on the decline.

8 Just as an aside, we have just finished a series
9 of two working papers on the petroleum industry at AAI,
10 one on industry trends, the other on a review of the
11 economic literature in major parts of petroleum.

12 Okay, well, let's look at investment in
13 infrastructure. This is new capacity. It is existing
14 upgrades and expansions to existing capacity. On the
15 transmission side, the purpose of building
16 infrastructure is to increase capacity, reduce losses,
17 reduce the probability of congestion. You get this
18 through line upgrades, increasingly distributed
19 generation. There is even talk of nano technology,
20 which would revolutionize transmission.

21 On the refining side, investment gets you higher
22 volumes of lighter, higher value products, refined
23 products. You get this through computerization,
24 advanced catalysts. You have heard all about this from
25 other very qualified people speaking from the industry

1 side, but what have we seen?

2 Well, what we have seen on the electricity side
3 is a decrease in investment in transmission
4 infrastructure pretty much spanning the 1990s. It has
5 only just recently been on the upswing. So, it does not
6 look super-dramatic, but it certainly has been a
7 decline.

8 On the petroleum side, this is the same measure
9 that I am using here, and this includes new and existing
10 improvements to capacity, a little bit more of a
11 dramatic picture. Again, on the decline for much of the
12 nineties, but recently on the upswing. Now, this could
13 be a function of any number of things, but I think the
14 statistics themselves are somewhat concerning.

15 All right, let's talk about utilization of
16 capacity, which is, again, this link to whether there is
17 a mismatch between supply and demand. If you look at it
18 on the transmission side, what we see is a pretty clear
19 indicator that the transmission grid in the United
20 States for these regional electricity markets has not
21 kept up with increases in demand, and increases in
22 demand is signaled by generation additions at various
23 points on the grid. So, you have got, obviously, a
24 vertically integrated industry, transmission and
25 generation.

1 One part, one segment of that industry, is
2 growing faster than the other, and so that should raise
3 questions, and that's that is why I say here in this
4 slide it is at odds with very stable generation capacity
5 margins. Generation capacity margins, if anything, have
6 increased, but investment in infrastructure and
7 transmission has decreased.

8 We have seen a dramatic increase in what's what
9 is called transmission loading release. These are
10 procedures that are invoked by security coordinators in
11 regional power markets to relieve congestion on the
12 grid, and the important part of the whole electricity
13 story here is that the -- what we call the blackout
14 externality is an extremely costly potential event. If
15 part of the system goes down, then that will affect
16 consumers and nodes and links on all the other parts of
17 the system.

18 On the refining side, we have seen an increase
19 in operating capacity as a percentage of operable
20 capacity. That means that utilization has gone up. I
21 looked at refinery outages as a possible indicator of
22 short-term vulnerability, but outages do not tell a very
23 clear story. I think you have heard from other people
24 here, you can look at inventories, you can look at the
25 level of imports, perhaps as other indicators.

1 So, here is the sad story on the transmission
2 infrastructure side: This looks like a happy graph, but
3 it is not. What you see here is that there are more
4 megawatts being jammed into a circuit mile of
5 transmission. So, that ratio is increasing over time.
6 So, more megawatts flowing through a fixed number of
7 circuit miles. So, that would be one indicator of
8 increased utilization on the grid, and that number looks
9 like it might be leveling out. There have been some
10 additions to transmission over time, but that is
11 definitely an area of concern.

12 This is even more concerning, and I know that
13 other speakers have spoken to the transmission loading
14 release issue. Since 1997, which is about when we
15 really started seeing the evidence of significant
16 restructuring, open access, RTO developments on the
17 electricity side, there has been a dramatic increase in
18 the incidence of transmission loading release.

19 These are actions that security coordinators
20 take to curtail transactions on grids, to reconfigure
21 transactions on grids, all the way up to what is called
22 a level six, which is a blackout on the grid. So, you
23 know, this is a pretty powerful picture of how, within
24 the last decade, the use of the grids in the United
25 States has changed dramatically. More megawatts going

1 through grids that were not built to accommodate
2 competitive market use in transactions, and this is
3 obviously a concern.

4 All right, refinery utilization rates have
5 peaked, it appears, in the late nineties. They were
6 very, very low in the 1980s largely due to the operation
7 of less efficient refineries that were processing
8 different types of crude and the removal of price
9 controls and sort of this conglomeration or, you know,
10 mix of factors that fundamentally changed the profile of
11 the refining sector.

12 All right, a little bit on factors contributing
13 to vulnerability. We talked about this a little more --
14 a little bit before restructuring, got transmission,
15 open access, deregulation of generation, produces more
16 intensive use of the grid, longer distance transmission
17 of power. From an economic perspective, though, I think
18 the key issue to take away here is that restructuring
19 regulatory initiatives on the transmission side, but
20 also environmental factors, resource factors on the
21 refining side, really change incentives about how firms
22 are going to invest in infrastructure. It is really all
23 about the incentives and what the incentives are for
24 firms to build new capacity or not to build new capacity
25 for a variety of very genuine economic reasons.

1 Environmental and resource factors on the
2 refining side, reformulated gasoline requirements,
3 changes in quality and availability of crude inputs has
4 created incentives to minimize the cost of holding
5 excess capacity. That is where those high-capacity
6 margins come from. But it also increases the complexity
7 of -- this increasing number of refined products that
8 refineries are producing increases the complexity of the
9 whole problem, sort of part of this bounded rationality
10 issue that economists are fond of citing to.

11 The last two factors, worsening bottlenecks on
12 both sides, aging infrastructure, a very unequal
13 distribution of capacity ownership amongst firms in the
14 industry, incumbents in the industry. Again, the key
15 strategic variable is investment in relieving
16 constraints in these bottleneck facilities. If you own
17 a bottleneck or control a bottleneck in a vertically
18 integrated chain, there are tremendous opportunities,
19 good and bad, to affect market outcomes.

20 Finally, this last factor that I want to talk a
21 little bit about are changes in market structures and
22 the effect of consolidation in these industries. There
23 have been significant waves of mergers in both
24 electricity and in petroleum. You are looking at
25 industries with a very high degree of vertical

1 integration between generation and transmission. Yes,
2 there has been a tremendous amount of generation
3 divestiture. That trend is possibly reversing.

4 The health of the independent generation sector
5 is not so good anymore. You have a lot of vertical
6 integration between refining and marketing. A lot of
7 this integration is good integration. It is
8 efficiency-enhancing. There are coordination economies
9 to be had at all these levels. But at the same time,
10 when bottleneck facilities are involved and when there
11 is the potential for market power and you have a
12 concentration in these regional markets, it does deserve
13 a closer look.

14 So, there is the electricity merger wave that we
15 are all very fond of at this point, and there is the --
16 it looks like a good surfing wave to me for the activity
17 in the oil and gas sector in the United States.

18 My conclusions are just a few. Worth more
19 scrutiny? Well, it is really worth looking hard at
20 firms' incentives to invest or not to invest in
21 bottleneck capacity, because that seems to be the source
22 of the problem. By the way, I am not disputing that
23 pipelines are a bottleneck -- in fact, they are -- but
24 refineries are a bottleneck as well, and they are a very
25 important bottleneck, and given the ownership structure

1 of refineries in the United States and the amount of
2 time the FTC, for example, has spent on mergers in
3 petroleum, I think it is worth a very close look.

4 Looking at vertical integration, inside and
5 outside of merger-related contexts, there is
6 increasingly this concept of system fragility, where you
7 have long, vertically integrated supply chains with very
8 concentrated ownership, which can actually create
9 fragile systems, where if part of the system goes out,
10 then there are not that many options for firms to avail
11 themselves of to choose alternative or use alternative
12 suppliers.

13 There is also the classic vertical concerns of
14 foreclosing rivals by limiting their access to inputs,
15 critical inputs, for example, refining capacity or
16 pipeline capacity, and then there is what we call this
17 small market shares problem. When you have got highly
18 constrained industries with bottleneck facilities
19 involved, having small market shares does not
20 necessarily imply small market power. When capacity
21 constraints are -- when firms operate close to capacity
22 constraints, even very small amounts of capacity
23 withheld are able to drive up the price significantly.

24 So, if you have the picture in your mind of an
25 inelastic supply curve, up near the capacity constraint,

1 there is a lot that can go on there that has potentially
2 significant price effects even without a tremendous
3 amount of market power. That is very worth looking at.
4 That has been examined very extensively on the electric
5 side. I think it needs to be looked at very carefully
6 on the refining side.

7 Questions worth more study: Perhaps redefining
8 high capacity utilization in light of new technology and
9 more efficient management of complex systems. It sounds
10 like we have got a lot of capacity constraints in these
11 industries, but the world has not come to an end yet.
12 Yes, we have had blackouts, the famous blackout in the
13 Midwest in '03. Yes, we have had hurricanes that have
14 taken out refining capacity and production capacity in
15 the Gulf. Those are catastrophic events that are to be
16 avoided at all costs, but industries are not planning
17 their systems anymore to really account for catastrophic
18 events.

19 What appears to be the case is that high
20 capacity utilization appears to be a somewhat
21 sustainable pattern, and the question is, do we have to
22 ask ourselves, well, have things changed? Has
23 technology changed? Has management changes in terms of
24 best practices? Is the complexity manageable enough now
25 that these industries are able to operate at high

1 capacity utilization rates without catastrophic failure?
2 Without catastrophic failure.

3 I am here at the FTC, and I do most of my work
4 in antitrust, and I have to encourage the FTC to
5 continue to look at mergers, to assess the effect of
6 both horizontal and vertical effects in mergers. The
7 AAI believes the FTC has done a phenomenal job at
8 scrutinizing these mergers. There has been a tremendous
9 amount of activity. Most of the activity in the
10 petroleum sector has been with very, very large
11 companies. It has largely involved the integration of
12 downstream assets, meaning petroleum refining and
13 marketing, and so there has been a lot of consolidated,
14 but also a lot of scrutiny on the FTC's part in this
15 area, and so we would encourage them to continue to look
16 at those mergers.

17 Again, I would cite to these two working papers
18 we have just come out with. They are posted on our web
19 site, and I know Michael wanted to maybe at the Q&A talk
20 about quantifying risk. I have certainly given that
21 some thought and would be happy to share ideas offline,
22 but I think I have used up most of my time. I want to
23 thank you.

24 MR. SALINGER: Well, thank you. I can assure
25 you that the FTC will continue to be very careful in its

1 scrutiny of mergers.

2 Our last speaker in the session -- I should say
3 he is not the last speaker today, because I get to have
4 the final word after this session is over -- but the
5 last speaker in the session is Dr. Michelle Burtis.
6 Dr. Burtis is an economist with Cornerstone Research, a
7 firm that provides economic expertise often in
8 litigation but in other matters as well.

9 Dr. Burtis has given expert testimony in federal
10 and state courts. She has presented evidence to our
11 sister agency, the Department of Justice, and also to us
12 at the FTC, and she has given advice to private clients,
13 and we look very much forward to her advice today.

14 DR. BURTIS: Thank you, Michael. Thank you,
15 everybody.

16 So, I think that my story is a happy story, so
17 maybe that is why you made me last, at least it is
18 happier relative to some of the scary things that we
19 have heard from the panel.

20 So, what I am going to talk about today really
21 is Katrina and Rita and the response in terms of both
22 supply and demand to those events, and the moral of the
23 story, if you will, the moral of my story is that the
24 market worked really well following those events, and it
25 is my conclusion, based on looking at the data that I am

1 going to show you, is that the reason that the market
2 worked so very well was because it was allowed to. That
3 is, prices were allowed to increase, as they did, as we
4 saw, fairly dramatically, and those increase in price --
5 that increase in price led to two things basically.

6 One is it created the incentive for supply to be
7 brought into the market to replace the supply that was
8 affected by these events, and it also led to a decrease
9 in quantity demanded, you know, prices went up, people
10 thought about where they were going to drive, and that
11 helped to ameliorate the effects of those events.

12 I have a few slides that talk about general
13 characteristics about energy markets. You guys probably
14 have heard these by now a hundred times in the last
15 couple days, but quickly, I think it is important to say
16 a couple things.

17 One is that people, consumers, do not understand
18 energy markets very well, and they do not understand why
19 prices go up and down. They do not understand why
20 prices are all the same sometimes across companies. I
21 guess I would extend that to not only consumers, but
22 some Congress people have that same problem, and it can
23 be a very emotional issue for people, because they need
24 to drive.

25 They view the gasoline as a necessity, and they

1 do not feel like they get anything out of it. You know,
2 you go to the store, you can buy some food, you get to
3 eat it. Gasoline, you just don't feel the consumption.
4 So, for that reason, I think, this is an issue that is
5 going to cause the FTC more and more headaches, and
6 people are going to just, you know, keep on talking
7 about these things.

8 So, there are some things that make price spikes
9 in the energy industries more likely. Basically -- and
10 I will separate everything in my talk since I am an
11 economist into supply and demand -- demand is very
12 inelastic. It is very difficult for people to respond
13 quickly to increases in price. In some energy markets,
14 there are regulations that make it more difficult for
15 people to even see the increase in price. Gasoline is
16 not one of those, I don't think.

17 Supply, there are supply factors as well that
18 contribute to this. As we have heard, again, even on
19 this panel, the kind of constraints in the distribution
20 of the products make it difficult to very quickly have
21 supply respond to price increases, and, of course, you
22 know, we are talking about natural resources. I mean,
23 it is very difficult to find new sources of oil and turn
24 it into gasoline.

25 So, what we saw -- I am going to I guess quickly

1 turn to the data. Katrina and Rita were I think by
2 almost any measure very catastrophic, very unusual
3 events. Katrina came first, of course, as we know. It
4 was the sixth most intense storm in the North Atlantic
5 measured by pressure that we have ever seen. Almost
6 2000 people were killed in that storm. The property
7 damage was far greater than any other storm, and, of
8 course, that had a lot to do with, you know, what
9 happened in New Orleans, \$81 billion.

10 Rita was about a month later. It was actually
11 more intense in terms of, you know, the pressure of the
12 storm. It was the fourth most intense storm that we
13 have seen. It was also -- it caused a tremendous amount
14 of property damage.

15 What we saw as a result of those events was a
16 decrease or a reduction in supply. This is a picture of
17 oil and gas facilities in the Gulf, and you can see the
18 red circle there was -- you know, that was where the
19 storm was going to hit. So, you can see that there was
20 just a substantial amount of refineries and crude oil
21 pipelines that were in the target of that hurricane.

22 This is a similar sort of picture for Rita, and
23 actually, Rita was even more dramatic along those lines.
24 Even though Katrina caused far more property damage,
25 Rita actually caused more damage in terms of the

1 refining industry.

2 This is an attempt to quantify the damage to the
3 refining industry of those two storms, and the dark blue
4 line is the percent of U.S. refining capacity that was
5 taken out as a result of Katrina, and you can see that,
6 you know, for at least, you know, it was about two
7 weeks, 10 percent of the U.S. refining capacity was out,
8 which is just -- you know, that is a huge, huge number.

9 Rita, as you can see, happened later. That
10 storm was more dramatic and took out 25 percent of the
11 U.S. refining capacity. When Rita hit, nearly all of
12 the Gulf refining capacity was out, I mean roughly,
13 because the Gulf is about 30 percent of our -- it is
14 about a third of our refining capacity, and about 30
15 percent was out, but the graph also shows that it came
16 back, you know, at least most of what was taken out came
17 back fairly quickly.

18 This is a graph of the spot prices of gasoline,
19 and this is the Gulf Coast spot prices. I should have
20 drawn this picture over a longer time period. This just
21 goes from 2003 through the end of 2005, but had I drawn
22 it out farther, what you would have seen is a line that
23 was almost flat, comes up a little bit in this period,
24 but then these amazing price increases that lasted a
25 fairly short amount of days, but still, very, very

1 dramatic.

2 These are retail prices. Retail prices went up
3 all over the country, especially after Katrina;
4 primarily in Houston and the East Coast after Rita. The
5 retail price increases lasted longer than the spot price
6 increases, which is not unusual. Spot markets tend to
7 be very, very responsive; retail prices are less. The
8 average increase in gasoline expenditures for a
9 household for a month was about \$36. That is the
10 increase in gasoline expenditures.

11 As high as these gasoline prices were, they were
12 not as high as most of the analysts were predicting
13 prior to Katrina. There were a lot of predictions of
14 \$5-a-gallon gas, and as you can see, New York was a
15 little bit more expensive than anywhere, went to about
16 \$3.30.

17 So, with these dramatic increases in price came
18 the supply response, and this is a picture of the supply
19 response in the way of imports. This yellow range, it
20 is the range of imports over the last three years or the
21 three years prior to 2005, and so what this graph shows
22 is that actually even prior to the hurricane, imports
23 were a little bit higher in 2005 than they were in
24 earlier years, but more importantly, I think, what you
25 can see in the later part of this graph, beginning in

1 September, is that imports increased dramatically.

2 They were substantially higher than they had
3 been in the past, and, of course, that happened because
4 of the increase in price, because there was an incentive
5 for importers to, you know, turn their ships around and
6 head to the United States, and you can see that it
7 happened remarkably quickly. Two weeks after Katrina,
8 imports into the United States were 35 percent higher
9 than they ever had been in the past three years, and two
10 weeks after Rita, they were 43 percent higher. So, that
11 is fairly amazing. From September through December,
12 they are about 40 percent higher than the maximum level
13 of imports over the past three years.

14 This is a picture of inventories prior to
15 Katrina, and the bars on the two ends are the maximum
16 and the minimum over the last five years, and what this
17 graph shows is that although we did have some gasoline
18 in inventory, we did not have much, at least compared to
19 historical levels, and so really the response in supply
20 had to come primarily through imports and, of course,
21 from getting the refineries back online.

22 This is an interesting picture. It is a picture
23 of the spot prices that we saw before, and you can see
24 the two spikes a little bit better here. This is just
25 over the course of 2005, combined with the product

1 supplied, gasoline product supplied in the United
2 States, which includes production, imports, and changes
3 in inventories, and that decline that you see right
4 after Katrina, it is almost at the same time, slightly
5 after the price spike, is about 8 percent of U.S.
6 gasoline supply, which, again, you know, if you think
7 about it, that is an amazing amount.

8 But what you also see is that about two weeks
9 after that, you see the product supplied into the United
10 States coming back. Now, it does not look like -- if
11 you just looked at this graph, you would say, "Whoa, it
12 does not look like it really got back to where it should
13 have been," but, in fact, if you -- you know, this is
14 January through December. Gasoline is very seasonal.
15 So, if you go back and you look at the beginning of
16 January, what you see is that, you know, when there was
17 no hurricane in January, the product supplied was quite
18 low, and if you put this product supplied up against any
19 other year, you would find that that pattern, again,
20 about two weeks after the first hurricane, looks very
21 much like what you see in every other year.

22 We actually tried to statistically estimate the
23 effects of Katrina on crack spreads, and so what we did
24 is we constructed an econometric model of crack spreads
25 and then used that model to predict what the crack

1 spreads would have been had there been no hurricane,
2 specifically Rita -- I'm sorry, Katrina, and what this
3 shows is that the blue line with the dots are the
4 actuals. Of course, the red line is what the
5 econometric model predicted in the historical period.
6 So, that is sort of how good our model was matching
7 actuals.

8 The green line is our predicted measure, and
9 then those two green dotted lines are the statistical
10 interval around our predicted line, and what we saw,
11 which I was pretty surprised about, is that even before
12 Rita hit, even before prices started to go up for Rita,
13 the effect of Katrina on crack spreads had largely
14 dissipated. And again, that is because prices were
15 allowed to increase. The crack spreads were allowed to
16 increase, which drove the imports into the United States
17 and also reduced demand.

18 So, my conclusions here are, you know, these
19 events were unusual. They certainly tested the energy
20 markets. The dramatic increase in prices and margins
21 that we saw reflected the uncertainty -- it reflected
22 not only the actual reduction in physical supply, but it
23 also reflected the uncertainty associated with what was
24 going to happen. The increases in prices and margin
25 provided an incentive for people to bring product into

1 the United States.

2 Again, the moral of my story is that was great.
3 Those price increases were actually very helpful,
4 because it allowed the markets to return -- you know, to
5 get back to an equilibrium, and had there been -- you
6 know, I am sure we all can recall what happened after
7 these events. There was a lot of call for, you know,
8 more regulation of prices and why are the oil companies
9 making so much money and all of that, and what this
10 suggests, what the data suggests to me, is that those
11 kinds of reactions are really not warranted and that we
12 should let these markets work, because that helped the
13 situation return to normal more quickly than had we not.

14 Thank you.

15 MR. SALINGER: Thank you.

16 Okay, well, thank you to the panelists. So, I
17 am still a little confused. If we look at the measures
18 that people suggest typically for whether we are more
19 vulnerable to disruptions, the two that get suggested to
20 us and that have been mentioned here are, at least with
21 petroleum, days supply in inventory and capacity
22 utilization, and based on those measures, we appear to
23 be more vulnerable, but as Tom pointed out, a lot of the
24 explanation for why inventories have come down and why
25 capacity utilization is higher is because the companies

1 have figured out how to manage their operations more
2 efficiently, and so that makes those measures imperfect.

3 So, my question is, is there some other measure
4 that we can look to to determine whether or not we are
5 more vulnerable or less vulnerable than we used to be?

6 The answer could be no.

7 DR. BURTIS: Do you want me to start?

8 MR. SALINGER: Michelle, yeah, sure.

9 DR. BURTIS: I guess, I mean, because I am an
10 economist and I like to fool around with various models,
11 I think certainly we could come up with one. I mean, we
12 could look, for example, at various supply
13 disruptions -- not necessarily big hurricanes, but
14 smaller ones -- and understand, you know, what the
15 relative increase in price was and whether or not it was
16 greater than it -- greater now than it had been in the
17 past. That is, you know, are we somehow getting to a
18 situation where we are less able to respond or unable to
19 respond as quickly? And I guess I would think of that
20 as being more vulnerable.

21 So, I guess I think the answer to your question
22 is probably yes, we could devise such measures, but
23 when -- you know, I will go back to my little spiel, you
24 know, when we see a really catastrophic event and we see
25 the kind of response that occurred, do we really need to

1 do that?

2 MR. SALINGER: Okay. Anyone else? Diana?

3 MS. MOSS: It is a good question. It is a hard
4 question. I guess my response is that it is really
5 mixed. You know, these industries to some extent are,
6 like all industries, are sort of moving targets. There
7 is innovation, there is restructuring, consolidation,
8 there are regulatory initiatives, legislative
9 initiatives that affect virtually every aspect of some
10 of these industries, and there is the learning by doing.
11 I mean, there is definitely learning effects, and I
12 think my analysis focused primarily on the last 10 to 15
13 years. I think it really tells a mixed story.

14 It also tells a very complicated story about all
15 the factors at work in these industries in terms of the
16 ability of the industry to adjust quickly to changes, to
17 manage shocks, demand and supply side shocks, to manage
18 the effects of changes in market structure. I think it
19 is something that really, you know, deserves a lot of
20 thought, but I guess I am unable to come up with any
21 sort of bullet-proof or, you know, sure-fire way of
22 assessing vulnerability. I am not sure we want to do
23 that either. I guess that is my instinct, is that that
24 might be a dangerous thing.

25 MR. SALINGER: We will put Bob on the spot last,

1 so I am going to give Tom an opportunity to chime in
2 before I put Bob on the spot.

3 MR. ANDERSON: Yeah, I guess I would disagree
4 with that, and the reason is vulnerability, like
5 investments, are very site-specific. It is impossible
6 to globalize vulnerability for the entire U.S. any more
7 than you can say, well, what does it cost for investing
8 in a house in the U.S.? Well, it depends on the site,
9 depends on the situation. And I would say, I was
10 involved in this when I worked at Aramco in Saudi Arabia
11 in assessing vulnerability in the eighties and made a
12 lot of strives, but it was not a global issue. It was
13 specific.

14 You had to identify specific areas, whether it
15 is shipping, pipelines, refineries, specific pipelines,
16 specific refineries and sites, and then say, "Okay, what
17 is the critical link in each one of these areas?"
18 Identify it, whether it is materials or supplies or
19 inventory, then you can assess vulnerability on a
20 site-by-site basis, and, of course, you can rank -- you
21 can figure out pretty quickly the most critical sites to
22 evaluate.

23 You do not have to evaluate every station in the
24 U.S., but there are refineries, refinery sites, port of
25 deliveries, such as the Port of Houston. What if Rita

1 would have come in the Port of Houston rather than in
2 Beaumont/Port Arthur? The answer, everything we are
3 talking about here, would have been totally different.
4 It would have flooded most of the refineries in the Port
5 of Houston, and they would have been out a long time.
6 As it is, we got relatively lucky, and it went to
7 Beaumont/Port Arthur. There is three major refineries
8 there. There is a whole lot more capacity that would
9 have been lost if it had gone in as planned in Houston.
10 So, it has got to be site-specific.

11 We probably do not need to study a major
12 hurricane coming into Port Arthur now. We know that.
13 We also know New Orleans. We still don't know Houston,
14 still don't know San Francisco. What if there is
15 terrorism in the Port of San Francisco, Port of LA,
16 Delaware River or the pipeline areas that I mentioned or
17 coming into Houston?

18 There is one channel, basically one channel, to
19 get all the crude into Houston, one channel to get all
20 the crude into Port Arthur. Neither one of those were
21 hit by Katrina or Rita. They were completely clean.
22 So, we were able to get crude in. The problem, of
23 course, was refineries.

24 So, the real issues are site-specific, crude
25 coming in through specific channels, the refineries

1 themselves, the product distribution going out in the
2 terminals, and there is a lot of specific site issues
3 that have to be addressed on each one of them to really
4 understand what is the vulnerability. I just say, you
5 cannot do it globally. It has got to be very
6 site-specific.

7 MS. MOSS: Michael, can I just -- just a quick
8 response. I do not disagree with what you are saying,
9 but I think we are speaking slightly different
10 languages. You know, of course, yes, you have to look
11 at specific facilities. That is done extensively on the
12 transmission side and on the refining side. I guess I
13 am speaking more from a policy standpoint in terms of,
14 you know, what oversight can take away from this
15 discussion in terms of developing policies to promote
16 nonvulnerability? I think you have to look a little
17 more globally to address the bigger policy issue.

18 MR. SALINGER: Well, Bob, an economist might say
19 that a way to measure the vulnerability is to look at
20 what people have to pay for insurance against various
21 risks, so suppose I was in a business where
22 \$100-a-barrel oil and consequential prices of refined
23 products would destroy my business and I wanted to get
24 an insurance policy against that. Would that cost me
25 more today than it did ten years ago or less?

1 MR. PERCOPO: I don't know, we wouldn't sell it.

2 MR. SALINGER: At any price?

3 MR. PERCOPO: Probably something equal to the
4 magnitude of the loss we would suffer. So, we are
5 dealing with an issue that keeps coming up time and time
6 again, whether it is taking the price risk on carbon
7 credits, taking the price risk on surges in oil prices,
8 surges in gasoline prices. We have got a nasty habit of
9 trying to understand the way a market reacts before we
10 are willing to take that risk.

11 I mean, the whole question on vulnerability I
12 think, as Tom mentioned, is site-specific,
13 severity-specific, and time frame-specific. I mean, I
14 think the system -- I think you raised the issue on
15 price and elasticity. What we seem to have is a system
16 that is very close to equilibrium. We have had
17 shortages and mistakes. All of a sudden, somebody else
18 is willing to sell them as long as the price attracts
19 them into it.

20 As we go through time, we look at the run-up in
21 prices, look at the percentage increase in oil reserves
22 for the economically viable reserves that become
23 available because prices are making them available. I
24 think Saudi Arabia, without new finds, they have got
25 roughly three times the reserves that they were

1 suspected to have just because when you get into more
2 expensive techniques for extracting, you get into
3 secondary and tertiary pumping technologies, all of a
4 sudden, what was deemed to be economically viable when
5 you are developing a well, well, you're bringing this
6 capacity back onstream.

7 About 12 months ago, there were rumors
8 circulating both in Washington and around the oil
9 markets that Saudi Arabia was about to upwardly adjust
10 their reserves by 70 percent. Just think of what that
11 would do to the dynamics in the market. And I am not so
12 sure that that is a myth. It is not in their best
13 interests to publicize that. It kind of got out there,
14 and then everybody covered it back up. I think we have
15 got a system that at least for the foreseeable future is
16 going to balance itself out.

17 MR. SALINGER: Okay. So, if I understand what I
18 think I am hearing, your presentation basically took the
19 position, at least with respect to petroleum, that the
20 market somehow finds ways of adjusting, okay?

21 MR. PERCOPO: Well, it has.

22 MR. SALINGER: And it has. If we take
23 Michelle's presentation about the hurricanes, she says,
24 look, here was this catastrophic event, and yet, even
25 though it was a difficult event to deal with, the market

1 basically handled it. So, should we take the experience
2 of the hurricanes to indicate that really we are not as
3 vulnerable as some people -- like Tom here maybe --
4 would have us believe, or should we look to the
5 hurricanes as really an indication that we were lucky
6 because the hurricane might have gone into Houston
7 rather than Port Arthur, or maybe it is not going to be
8 a hurricane, it is going to be an earthquake that
9 probably no one in this room had thought of before Tom
10 raised it.

11 MR. PERCOPO: May I play an economist here, "on
12 the one hand and on the other hand"?

13 When I was talking, part of what I said was that
14 when Rita or Katrina hit, we were not in an ideal world
15 from a production standpoint. We had problems all over,
16 and yet, with the severity of the events of Rita and
17 Katrina, we were able to balance -- the world was able
18 to balance itself out, and fortunately, it came to our
19 aid at that point in time.

20 Now, on the other hand, on a long-term basis, we
21 are still dealing with a basic resource, and unless
22 dinosaurs come back and inhabit the earth and we are
23 still around, we have a problem. We really need to do
24 something in the long term, but what I am against is
25 people reacting quickly to symptoms rather than what the

1 real issues are, and part of it I think has come up in
2 the whole ethanol issue, and every time you criticize
3 ethanol, you have got more people agreeing with what you
4 say, but yet, we have got a government that is going
5 merrily down the ethanol path. Biodiesel is another.
6 We need to find realistic long-term solutions, and we
7 have at least some time to do that. Let's do it right.

8 MR. SALINGER: I have just been given a sign to
9 use microphones. Which of us has not been using --

10 MR. PERCOPO: Me.

11 MR. SALINGER: Okay, thanks.

12 So, on this issue of whether or not we were --
13 whether or not the hurricanes provide evidence that the
14 system is more robust than we thought versus the
15 possibility that really we are subject to really bigger
16 catastrophes than that and picking up on the theme of
17 the role of public policy that some of you have raised,
18 in theory, if there is a sufficiently severe disruption,
19 prices are going to go high, and there will be an
20 opportunity for someone to make a lot of money off of
21 it, and the question is, are the incentives in the
22 system adequate so that the companies can make
23 investments so that they will make money when disasters
24 occur, but that those investments will turn out to
25 mitigate the harm, or is there something in the system

1 that makes -- you know, that prevents companies from
2 making those investments?

3 Tom, I know you advise companies on these
4 matters. Maybe you can -- I know you are not going to
5 tell us everything that you -- you charge them a lot of
6 money for that advice, but --

7 MR. ANDERSON: But they get a lot of value.

8 Well, the real issue in the U.S. makes it
9 extremely difficult. I mentioned I did the same thing
10 in Saudi Arabia, went all the way through it, and it was
11 real easy to get a policy decision. If the King says do
12 it, you do it. You cannot do that here. There is
13 Congress, regulatory authorities, individual companies,
14 the financial people. It is very difficult to get a lot
15 of people together to say this is how we are going to
16 invest in a system to be able to react to contingencies
17 that may or may not happen.

18 It is a lot easier to do in a place where you
19 have one top decision-maker that can say, "Yes, do it,"
20 and so as a result, here, what I have to say is -- and
21 in some way I agree, Diana -- is that it has to be a
22 policy issue. It has to be something that starts -- the
23 Government has to be involved, because for one thing,
24 there is all the antitrust, anti-trade issues involved.
25 Companies cannot just get together and decide, "Well, in

1 this event, we'll store this product, you store that,
2 and then we'll swap and trade." You know, they can be
3 charged with collusion and a lot of various issues.

4 So, from the company side of this, that it has
5 to be a government policy initiative that then gives
6 them the authority to do something like this should they
7 choose to do it, but nobody wants to do it without
8 study, and that takes time, and that is a site-specific
9 study, because there are so many points of
10 vulnerability, you have got to rank, identify, see what
11 is involved, the costs, all the issues, then you can
12 make site-specific decisions, but there is quite a bit
13 of study that has to be done to get to that point, and I
14 think most companies would say that.

15 They are not going to go out and rush and invest
16 in things that they might get charged with collusion
17 down the road or might be another -- something that
18 would benefit another company. It is very difficult to
19 get a consensus. You know, I think the Government has
20 to be involved. It has to be a policy decision.

21 MR. SALINGER: Well, if you take -- you
22 mentioned the risk of pump stations going out on one of
23 the pipelines headed up to the East Coast. What sort of
24 coordination among companies would be needed to make us
25 less vulnerable to that risk?

1 MR. ANDERSON: Yeah, spending a lot of money to
2 go out and buy extra pumps and store them somewhere so
3 that they are available and extra manifolds, computer
4 systems, to have things far and above what, say, the
5 major pipelines would have today. That is a lot of
6 money to go out and spend in an environment that they
7 are in. The pipelines do not make money when prices go
8 up. The pipelines make a flat rate. So, they would
9 have to have a rate increase to allow them to do that.

10 So, that would have to be a policy decision to
11 allow the pipelines, Colonial, Plantation, Explorer,
12 Centennial, et cetera, to go out and spend that money,
13 get the pumps, get the manifolding, store it in a secure
14 place, have it ready, so that if something happens to
15 the pipelines, they can make these big investments
16 quickly. That alone will take a long time to do, but I
17 cannot see how it could happen without the Government
18 setting some kind of a policy directive.

19 DR. BURTIS: I mean, I have to say -- I have to
20 interject here. The reason --

21 MR. SALINGER: Speak into the microphone.

22 DR. BURTIS: I'm sorry.

23 The reason that that probably will not happen is
24 because, A, I mean, it -- we do not know what is going
25 to happen. If we knew that there was going to be an

1 earthquake or a hurricane or some particular pipeline
2 was going to go down, then it would be reasonable for us
3 to say, "Okay, companies, get together and let's make
4 these investments, let's put all those, you know,
5 pumping stations out there," you know, because -- even
6 if we knew that it was going to be in the next five
7 years.

8 But the point, I think, is that we do not know
9 what it is going to be. We do not know where it is
10 going to be, and we cannot possibly do those kinds of
11 preparations for every possible event that could happen.

12 MR. ANDERSON: Oh, I wouldn't suggest that. I
13 wouldn't suggest that at all.

14 DR. BURTIS: But it would be -- and even if we
15 decided, even if we got together and, you know, some
16 weird way, some -- you know, we ranked, okay, here are
17 the five things that probably -- meaning 5 percent
18 probability -- are going to happen in the next five
19 years, those are costly, and you know what that means?
20 That means that consumers are going to pay more for
21 gasoline every single day, every single day, regardless
22 of whether or not there is a spike, and that is not a
23 politically acceptable thing.

24 MR. PERCOPO: Aren't you really dealing with
25 both issues? On the short-term side, you really need to

1 let supply and demand determine what price is so you can
2 react as the markets reacted on Rita and Katrina. Long
3 term is where policy has to come in and build safeguards
4 to protect -- again, to build additional capacity, build
5 spare capacity, whatever you need to get you to where
6 you have a system that is less prone to shocks, but in
7 the short term, could you imagine if we needed public
8 policy to get us out of the Rita and Katrina issue?

9 DR. BURTIS: Well, we did. It was called FEMA.
10 It did not work too well.

11 MR. ANDERSON: Actually, it was more than that.
12 It was European policy that had the inventories, the
13 additional inventories that we were allowed to draw
14 down. They were the ones that had the policy and
15 provided the incentives for the companies to build up
16 there that we were able to get out of Katrina and Rita.
17 There was a policy. It just wasn't ours. It was
18 European.

19 DR. BURTIS: And we could have such a thing. We
20 could have federally mandated inventory levels, but
21 again, that is going to cost money, and consumers are
22 going to pay for it.

23 MS. MOSS: Well, just to add to what Michelle is
24 saying and maybe tie some of this together, I think
25 there is plenty of evidence that the markets, these

1 energy infrastructure markets, struggle with the
2 incentives issue. Why else would you have proposals for
3 a strategic refinery reserve? Why else would you have
4 proposals to mandate capacity margins on the electric
5 side?

6 There are a tremendous number of public policy
7 proposals that come out on a regular basis to deal
8 fundamentally with this incentives issue, which I think
9 is an outgrowth of the inherent risks associated with
10 doing business in these very complex industries.
11 There's market risk; there's regulatory risk; there is a
12 huge risk portfolio that vertically integrated companies
13 have to manage on a daily basis. I think those risks
14 are pretty daunting, and I am not sure that the markets,
15 as they are in these various stages of deregulation or
16 reregulation, at least on the electric side, are
17 really -- I am not sure the signals are that clear, and
18 I think there is a pretty -- I am not advocating for a
19 lot of government intervention here, but I think there
20 is a problem.

21 MR. SALINGER: Okay. At the risk of being
22 accused of running this session the way a university
23 president runs a faculty meeting, we have time for just
24 a few questions from the audience.

25 MR. CAREY: John Carey, IGO. I cannot get -- I

1 got confused a little bit, because whether we answer
2 that question depends on the philosophy we are trying to
3 espouse. Everybody is saying or most people here are
4 saying the market works, which we fairly believe in
5 that, but the point is that if the market works, if the
6 supply is consistent with product maximization and the
7 demand is consistent with maximization, then why do we
8 care? Why do you have to care about whether -- really,
9 because the market will work, okay? So, I am kind of
10 confused why we are even posing that question.

11 Now, if we don't believe that the market works
12 fairly well, then the policy comes in. That's where we
13 have to be very clear what we are trying to -- because
14 we can't have it both ways. We can't say, "Okay, the
15 market works," and then we are worrying about
16 vulnerability. We shouldn't do that.

17 MS. MOSS: But we do have it both ways. We do
18 have markets functioning with a pretty high degree of
19 efficiency, but high price volatility is not a
20 politically palatable thing.

21 MR. CAREY: I agree.

22 MS. MOSS: So, we have that. So, we have
23 intervention in markets. We have policies, good or bad,
24 that are designed to manage volatility and to get at
25 some of the underlying fundamentals. It is a public

1 policy choice that has been made.

2 MR. CAREY: I agree, but the question is the
3 fundamentals. You have to question the fundamentals to
4 be able to answer that question. For example, I believe
5 Michelle was talking about if we do all these things, it
6 is going to cost a lot of money. Yeah, it cost a lot of
7 money. As a person, you buy insurance. You buy
8 insurance for your car. You don't know when you are
9 going to have an accident. You don't know when your
10 house is going to get flooded, but you buy it. It cost
11 you a lot of money, but you still do it. So, if you do
12 it, why can't the Government also do something like
13 that?

14 DR. BURTIS: Well, we could do it. I guess that
15 was my point. We could do it, and that insurance that
16 you are going to be paying, the Government is not going
17 to paying it. You are going to be paying it.

18 MR. CAREY: Sure, yeah.

19 DR. BURTIS: Because every time you fill up, you
20 are going to pay, whatever, a dime a gallon, a nickel, I
21 don't know, to have higher inventories just in case
22 there is a hurricane.

23 MR. CAREY: (Inaudible comments.)

24 MR. ROSENBERG: I would like to comment on that
25 having to worked with Florida Gas Transmission for a

1 number of years. I'm David Rosenberg, retired from
2 Florida Gas Transmission and a bunch of other stuff.
3 Basically what it boils down to is on the pipeline,
4 where we have got a lot of common gas turbines, and, of
5 course, we are long straw, meaning basically from Texas,
6 Louisiana and into Florida, and so we have spare rotors
7 that are kept by the manufacturer. I mean, that's the
8 insurance, and, of course, FERC allows us to do that.

9 Now, sure, you could go to the next step and
10 say, well, what if there was a hurricane or something
11 that came through and completely destroyed a compressor
12 station, you know, and destroyed the compressors? We
13 don't keep the static assemblies. We just take our
14 chances that those babies are sturdy enough, and it is
15 kind of comparable to the pump situation, where I
16 suspect that there are some spare rotors and that type
17 of thing around or, you know, rotating assemblies, but
18 the problem is is that the other stuff is too expensive.

19 It is unlike a house where your house burns
20 down, there's lumber, there's carpenters, there's
21 everything you need, unless it is a New Orleans
22 situation. You have a car accident, there's tons of
23 cars out there. You have some super fancy pump that's
24 made in one factory in Switzerland go out on a pipeline,
25 it is a totally different situation, and so you've got

1 one manufacturer, and it costs you a boodle of money for
2 something that may never happen, and it's not quite the
3 same kind of insurance, because, in effect, what you
4 have to do is you're buying another house or you're
5 buying another car to make sure that if your car gets in
6 a wreck, you've got your car. So, I think to me that's
7 the difference.

8 MR. SALINGER: Well, let me try to combine these
9 into one final question for everyone. If you were to
10 give the Government advice on the one thing that it
11 needs to do to make the country less susceptible to
12 disruptions, what would it be? And the answer can be
13 you don't need to do anything because what we are doing
14 now is just right.

15 Michelle, do you want to start?

16 DR. BURTIS: My advice would be pretty much to
17 stay out of the way, I think. My advice would be please
18 don't try to put some sort of overarching regulation,
19 you know, over an entire industry like, you know, for
20 example, you have to build ten more terminals everywhere
21 or, you know, you -- that, to me, is just very costly,
22 and so I guess that would be my advice.

23 MR. SALINGER: Diana?

24 MS. MOSS: Well, my response is probably
25 predictable, and that's that the Government needs to

1 address the underlying factors that create possible
2 vulnerability. It needs to monitor industry
3 consolidation. It needs to ensure that environmental
4 policies and initiatives are not creating incentives
5 that do not promote vulnerability. It needs to address
6 bottleneck issues through antitrust scrutiny.

7 So, I think getting at sort of the underlying
8 factors that contribute to vulnerability is where the
9 Government's resources are probably best spent as
10 opposed to sort of an over-umbrella regulatory approach.
11 So, I guess I'm in agreement with Michelle largely on
12 that, but even within the areas that I looked at in my
13 remarks, there's a lot to do certainly.

14 MR. SALINGER: Bob?

15 MR. PERCOPO: I guess in one phrase, leave it
16 alone. Every issue that I've dealt with the Government
17 on, they have seemed to be more of a stumbling block
18 rather than a catalyst for something positive, and I'd
19 rather just leave it at that.

20 MR. SALINGER: Okay. Tom?

21 MR. ANDERSON: I guess I would say the one thing
22 that needs to be done is to study what the situation is,
23 to get information. I don't agree with sticking our
24 head in the sand. I think it needs to be known, what
25 are the issues, what are the constraints, and what are

1 the costs to remove them? That does not mean you go
2 ahead and do it. It just means identify them and get
3 them quantifiable, then people can deal with it, and
4 that -- to me, that's the one thing, and it can't be
5 government.

6 It has got to be Government with industry.
7 There's no way that the Government could go through and
8 do this systematically. It has got to be industry, and
9 there's no way that I see that industry can do it
10 without charges of collusion. So, I think it has to be
11 somewhat done together, and that would be my
12 recommendation. Get the facts out, then we'll decide
13 what to do.

14 MR. SALINGER: Great.

15 Well, as it turns out, I am scheduled both to
16 moderate this panel and give closing remarks, so I have
17 to do some sort of segue. So, I'll end the panel now
18 and thank the panelists very much for a very fine
19 presentation.

20 (Applause.)

21 MR. SALINGER: With respect to final remarks, I
22 will begin with words that I think everyone will like to
23 hear, which is I shall be brief. I don't know that it
24 was explicitly planned this way, but I'm delighted and
25 I, at least, think it is appropriate that economics gets

1 the last word at this conference. When I talk to people
2 about energy policy, I often hear two quite distinct
3 approaches. One is to forecast our energy needs, survey
4 the available resources and supply, and then describe
5 what investments we as a nation need to make. That's
6 the planning approach. The other is to assess whether
7 markets provide proper incentives for businesses and
8 consumers to address our energy needs efficiently, and,
9 if not, whether the problem is an inherent imperfection
10 in market mechanisms or, alternatively, the result of
11 distortions created by unwise government policies. That
12 is the economic approach.

13 It won't surprise you that I lean heavily toward
14 the latter. In part that reflects my choice in career.
15 I would also argue, though, that the economic approach
16 lies at the heart of the mission of the Federal Trade
17 Commission. In the United States, the broad strategy
18 for arranging for adequate energy supplies is to rely on
19 markets to do the job. The reliance on markets requires
20 something of a leap of faith, albeit one that is
21 supported by the available evidence.

22 As was discussed Tuesday morning and at other
23 times throughout this conference, the United States
24 experienced two major oil shocks in the 1970s. Those
25 experiences provided evidence of the difficulties of

1 trying to manipulate markets. The gray-haired among us
2 remember well the gas lines, and viewed over a longer
3 horizon, the oil shocks provide evidence of the power of
4 the market to generate solutions.

5 When gasoline prices were high, Americans
6 started driving smaller cars. The more recent trend
7 toward large cars reflected both a decline in the real
8 price of gasoline and regulatory distortions such as
9 those provided by CAFE standards. The hurricanes of
10 2005 provide another dramatic example of the power of
11 markets, as some of our panelists just told us. Yes,
12 prices went up, and yes, there were shortages. In light
13 of the extent of the devastation, however, it is
14 remarkable that prices did not go up higher than they
15 did and that they were returned to pre-hurricane levels
16 so quickly, and yet, even with this evidence, the notion
17 that the market will continue to provide solutions, that
18 it will provide appropriate incentives to conserve and
19 produce and generate new technologies to manage our
20 long-run energy needs, and that they will help minimize
21 the problems created when future disasters strike,
22 requires a leap of faith.

23 If I were to point to one lesson that I've
24 learned in my time with the Commission, it is that the
25 argument that we should rely on energy markets can be a

1 very tough sell. It is not such a tough sell when
2 prices fall, but when prices increase, people complain
3 and allege a failure of competition. The Federal Trade
4 Commission's principal role in energy policy is to make
5 sure that markets are competitive. It reviews mergers
6 to make sure that they do not alter the structure of
7 markets so as to create an incentive to exercise market
8 power. It also attacks anticompetitive practices as
9 when it challenged UNOCAL's abuse of the
10 standard-setting process with respect to CARB gasoline.

11 Important as these activities are, the premise
12 behind this conference was that competition policy is
13 just one piece of energy policy. Understanding the
14 broader contexts of energy markets and energy policy
15 will help the Federal Trade Commission in its
16 enforcement of the antitrust laws.

17 In addition, the job of the competition agencies
18 is easier the more the public at large understands how
19 competition and markets work. I hope that this
20 conference will have informed the public as much as it
21 has informed us.

22 This conference reflects the hard work of many
23 people at the Commission. Time does not permit me to
24 acknowledge all of them, but I think we owe a special
25 debt of gratitude as well as hearty congratulations to

1 John Seesel, the main organizer. Like the belief in
2 markets, putting on a program of this sort requires
3 something of a leap of faith. John kept the faith and
4 also accepted ultimate responsibility for making sure
5 that the program was a success both substantively and
6 logistically.

7 Most of all, though, we would like to thank all
8 our speakers, panelists, and moderators over the last
9 three days for the interest you have shown in this
10 conference and for the thought and effort you have put
11 into your participation. We thank you for sharing your
12 expertise with us and with the public. We have found it
13 to be most worthwhile from our standpoint, and we hope
14 that you have found it worthwhile from your standpoint
15 as well. For those of you who have come from a long
16 distance, we wish you a safe journey home.

17 Thank you very much.

18 (Applause.)

19 (Whereupon, at 12:41 p.m., the hearing was
20 concluded.)

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1 C E R T I F I C A T I O N O F R E P O R T E R

2 DOCKET/FILE NUMBER: P072114

3 CASE TITLE: ENERGY MARKETS IN THE 21ST CENTURY

4 DATE: APRIL 12, 2007

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6 I HEREBY CERTIFY that the transcript contained
7 herein is a full and accurate transcript of the notes
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9 FEDERAL TRADE COMMISSION to the best of my knowledge and
10 belief.

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SUSANNE BERGLING, RMR-CLR

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18 C E R T I F I C A T I O N O F P R O O F R E A D E R

19

20 I HEREBY CERTIFY that I proofread the transcript
21 for accuracy in spelling, hyphenation, punctuation and
22 format.

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24

25

DIANE QUADE