



Energy and Environmental Policy Outlook

Business Implications and Investment Opportunities

Washington, D.C.
April 19, 2007

Presented by:

Pepper Hamilton LLP
Attorneys at Law

THE ABRAHAM GROUP LLC

Featured Speakers and Panelists

Speakers

The Honorable Spencer Abraham

Chairman and CEO
The Abraham Group LLC
Former U.S. Secretary of Energy

The Honorable Rick Boucher (D-Virginia)

Member, U.S. House of Representatives
Chairman, Subcommittee on Energy and Air Quality,
House Committee on Energy and Commerce

The Honorable Guy F. Caruso

Administrator, Energy Information Administration
U.S. Department of Energy

The Honorable Joseph T. Kelliher

Chairman
Federal Energy Regulatory Commission

The Honorable Dirk Kempthorne

Secretary
U.S. Department of the Interior

Panelists

Gregory E. Aliff

Vice Chairman
National Managing Partner, Energy & Resources
Deloitte & Touche USA LLP

Rome Arnold

Managing Director, Head of Energy
Banc of America Securities LLC

Red Cavaney

President and CEO
American Petroleum Institute

Vincent DeVito

Of Counsel
Pepper Hamilton LLP

The Honorable Mike Doyle (D-Pennsylvania)

Member, U.S. House of Representatives
Member, House Committee on Energy and Commerce

The Honorable Mike Ferguson (R-New Jersey)

Member, U.S. House of Representatives
Member, House Committee on Energy and Commerce

Dr. William M. Ferretti

Vice President and Special Assistant to the Chairman
Chicago Climate Exchange, Inc.

Joe Gold

Managing Director
Head of Commodities – Americas
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Stanley C. Horton

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Thomas R. Kuhn

President
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Robert McNally

Managing Director, Tudor Investment Corporation
Former Special Assistant to the President,
National Economic Council
Former Senior Director for International Energy,
National Security Council

Fredrick D. Palmer

Senior Vice President of Government Relations
Peabody Energy

Bernard J. Picchi

Senior Managing Director, Energy Research
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Dr. Robert M. Simon

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J. Scott Swensen

Chairman
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Randall S. Swisher

Executive Director
American Wind Energy Association

Thomas W. Trimm

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Pepper Hamilton LLP

Dr. Harlan L. Watson

Senior Climate Negotiator and Special Representative
U.S. Department of State

Dear Energy Industry Colleague:

Pepper Hamilton and The Abraham Group recently hosted a conference in Washington, D.C., called, "Energy and Environmental Policy Outlook: Business Implications and Investment Opportunities."

The full-day program on April 19, 2007, brought together leaders from business and government to discuss energy and environmental legislation, energy investments and project finance, federal and state regulatory activity and cross-border implications, and geopolitical considerations.

With the backdrop of energy policy being called the most daunting challenge facing America in the 21st century, two dozen preeminent industry speakers (see the list on the facing page) shared their knowledge, concerns and optimism about the future of energy policy and the business and investment opportunities it might present. It was a day rich with content and opinions.

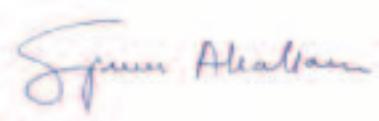
We have assembled the following highlights from the day's proceedings to offer as a reference piece for those who attended the conference and to share with our friends who could not be there.

We also have posted on Pepper's Pod Center recorded segments from and observations of our conference. They are available at www.pepperpodcasts.com (click on the "energy" category).

Depending on where and how you are involved in the energy sphere, there are a number of things with which Pepper Hamilton and The Abraham Group – together or individually – can help you. We would be happy to meet with you and talk through the challenges and opportunities you face.

We look forward to seeing you at future conferences. If we can be of service to you, please do not hesitate to call upon us.

Very truly yours,



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George A. Lehner
Vice Chairman of the
Executive Committee
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Session One: Energy and Environmental Legislation

Moderator: Joseph V. Del Raso – Partner, Pepper Hamilton LLP

Session One focused on the legislative aspects of U.S. energy and environmental policy. U.S. House Energy Subcommittee Chairman Rick Boucher (D-Virginia) cited the recent Supreme Court decision that puts regulation of greenhouse gas emissions under the EPA, and explained efforts in Congress to develop an appropriate and equitable basis for that regulation.

Panelists debated the relative merits of several proposed paths to reduced emissions, including various concepts of “cap and trade;” more stable policies on wind and other renewables; and the use of natural gas as a bridge fuel until alternative energy technologies can mature. Dr. William M. Ferretti, VP and Special Assistant to the Chairman of Chicago Climate Exchange, warned that any effective system must apply to all six greenhouse gasses, not just carbon dioxide.

The most lively exchange was seen in the contrasting views of the natural gas industry – supporting increased foreign imports of liquefied natural gas to meet demand – and the coal industry, which maintains that buying gas from unstable governments forfeits U.S. energy security and independence.



The Honorable Rick Boucher
Chairman, Subcommittee on
Energy and Air Quality,
U.S. House Committee on
Energy and Commerce

Featured Speaker: The Honorable Rick Boucher (D-Virginia) – Member, U.S. House of Representatives; and Chairman, Subcommittee on Energy and Air Quality, House Committee on Energy and Commerce

The scientific consensus with regard to the effects of the human contribution to climate change has deeply solidified ... We no longer have a question of “if” mandatory climate change controls will be put in place; the only question remains when that is going to happen ...

This legislation must be economy wide ... There are substantial contributors to the greenhouse gas burden across the economy and all of those contributors should have a role in helping to address the solution.

We also insist on this legislation being bipartisan. We are reaching out to our Republican colleagues on the Energy and Commerce Committee and asking for their participation.

This legislation must be industry supported. The electric utility industry, the power generators, the automotive industry, the chemical industry and the coal industry have all announced they will work with us.

It is important that we have international participation from developing countries. The major reason that the Kyoto protocol failed in the United States is that it did not have any burden imposed upon those parts of the world where the most growth in greenhouse gas emission is occurring, which is India, China and Brazil.

Selected Panelist Remarks:

Climate Change. If you look at the 15 original countries in the EU who operate under the Kyoto regime, their greenhouse gas emissions from 2000 to 2004 increased 5.8 percent. Here in the United States over that same period, emissions only increased 1.7 percent, while we had higher economic growth and a much larger expanding population.

Ethanol. The chemistry of ethanol is reasonably well understood; the big challenge is the infrastructure and the technology to move it in the volumes that are going to be needed.

Red Cavaney
President and CEO
American Petroleum Institute

Cap and Trade. Cap and trade provides a unique opportunity for companies to identify efficiencies and to reduce emissions, not just to meet a cap, but to go deep and beyond that cap and create significant value for the company, in the form of new-found revenues.

William M. Ferretti, Ph.D.
Vice President and Special Assistant to the Chairman
Chicago Climate Exchange, Inc.

Gas as Bridge Fuel. Natural gas has the lowest carbon content of any fossil fuel. The carbon content of natural gas measured in CO₂ emissions per unit of energy is 44 percent less than coal. Until carbon capture and storage technologies are developed and deployed, natural gas will continue to be one of the most effective options available for achieving carbon reductions. To meet this increase in U.S. natural gas demand, we've got to increase domestic natural gas production, and we need to import large amounts of liquefied natural gas.

Stanley C. Horton
President and COO
Cheniere Energy, Inc.



Stanley C. Horton
President and COO
Cheniere Energy, Inc.

Energy Security. We should not be pursuing natural gas from governments that don't like us. We know where the coal is. We know it's within our shores ... We know it represents national security. If coal use is limited for any reason, liquid natural gas becomes the default fuel for power generation, and the United States will voluntarily cede control of its energy future to a foreign energy cartel.

Fredrick D. Palmer
Senior Vice President of Government Relations
Peabody Energy

Unstable Wind Policies. The single biggest constraint on the growth of the wind industry in the United States has been the on-again, off-again nature of federal policy. It has been a singular disincentive for investment in manufacturing here in the United States.

Potential for Power and Carbon Reductions. If wind grows to 20 percent of U.S. power generation by 2030 – and there certainly aren't any technical barriers to achieving that – this would avoid 15 percent of the expected power-generated CO₂ emissions. But, stabilizing the climate really does require transforming the electric energy industry.

Randall S. Swisher
Executive Director
American Wind Energy Association



Fredrick D. Palmer
Senior Vice President of
Government Relations
Peabody Energy

Session Two: Energy Investments and Project Finance

Moderator: Joseph McMonigle – President, The Abraham Group LLC

Session Two focused on the challenges facing energy investors and those looking to finance various energy development projects. Featured speaker Administrator Guy Caruso of the U.S. Energy Information Administration laid some groundwork for the topic, indicating that, even with increases in new energy sources, the United States is still likely to remain about 60 percent dependent on foreign oil imports to meet demand. While he emphasized the Bush Administration's support for increased ethanol production and research, he said that meeting these goals will depend on technology advances in producing economical ethanol from sources other than corn. Similarly, he said that renewable sources of electric power are not currently economical enough to operate without heavy subsidies.

The panelists' comments covered a wide range of related topics, but three investment-related themes cropped up repeatedly: the need for regulatory certainty; the costs of technology; and the relative availability of energy sources. Two speakers emphasized that regulatory certainty – specifically on carbon emissions – would be critical to attracting investors to such projects as developing clean coal technologies. Others spoke of the fact that, despite fossil fuels' increasing costs, they are still cheaper and more plentiful than any of the alternatives, and that the high cost of new technology, coupled with practical distribution problems, may make other sources, such as wind, solar and clean coal, less attractive to investors for some time to come.



The Honorable Guy F. Caruso
Administrator, Energy
Information Administration
U.S. Department of Energy



Gregory E. Aliff
Vice Chairman and
National Managing Partner,
Energy & Resources
Deloitte & Touche USA LLP

Featured Speaker: The Honorable Guy F. Caruso – Administrator, Energy Information Administration, U.S. Department of Energy

Energy Independence. You hear a lot about energy independence. Well, we are not on a path to change that. We are on a path that we would continue to be about 60 percent dependent on net oil imports to meet our total demand for oil ... We do see new gas supplies becoming available, including unconventional sources such as coalbed methane and oil/gas shale, and we expect that at some point, we will get a pipeline from Alaska to bring gas into the middle of the country.

Ethanol. We are at about 5 billion gallons of ethanol per year, and we do think that under present economics and present laws, that will go to at least 12 billion in 2012 and 15 billion in 2030, almost all of which, in our outlook, is corn-based ethanol because of the current technology and current economics. The President called for 35 billion gallons of alternative fuels, including ethanol, by 2017 ... and there is a substantial effort underway in DOE to improve the research and development to bring down costs in producing cellulosic ethanol. Whether or not these larger targets will be met will be dependent on how the technology improves.

The economics of renewable sources for electricity continue to be unfavorable for an increase in market share.

Selected Panelist Remarks:

Tax Credits Not Enough. One of the questions on the table is whether anticipated future demand for electricity can be met at least in part through project finance infrastructure using tax incentives, or whether there is more that is needed ... About 18 months ago, we were asked to look at the issue of incentives, both financial and regulatory, needed to stimulate or advance the purchase of new clean coal power technology ... In performing this study, we surveyed a variety of stakeholders, including future buyers of the technology. Most interestingly, the risk mitigation factor that was

clearly the most important among the stakeholders was ... regulatory certainty with regard to recovery of the cost associated with the investment in new technology. Most felt that tax credits did not appear to be targeted specifically at the issues associated with new technology. That is, simply reducing the cost premium associated with new technologies was not enough to stimulate immediate investment.

Gregory E. Aliff

*Vice Chairman and National Managing Partner, Energy & Resources
Deloitte & Touche USA LLP*

Private vs. National Oil Reserves. When you sell a barrel of oil, you have to go find it. You can't make it; you have to find it ... What are we doing to replace these reserves? ... Only about 5 percent of the worldwide reserves are in private hands – Exxon, Chevron, BP and the like. And 95 percent is controlled by national oil companies – Kuwait Petroleum and others. What is funny about that is, we make Exxon the bad guy ... Every barrel of oil they find is one less barrel we have to buy from the 95 percent holders. ... It is very easy to get angry at Exxon as you go fill up your car, but I can assure you, there is nobody at Exxon ordering a private 747.

Challenge of Financing Alternatives. The tyranny of fossil fuels is that they have the best energy content. They have better energy content than ethanol. They are, at the moment, the most efficient way to produce what we need to keep the lights on. So, whether you look at solar, wind, fuel cells, clean coal, or all of these things, we really have a challenge facing us. And the challenge is how do we, with technology – and I'm a big believer in technology as a way to solve some of these problems – how do we finance that?

Rome Arnold

*Managing Director, Head of Energy
Banc of America Securities LLC*



Rome Arnold
Managing Director,
Head of Energy
Banc of America Securities LLC

Investment Requires Regulatory Certainty. As an investor, when we are looking at different markets across the globe, one of the key things we are evaluating is the regulatory environment in each country ... we ultimately look for regulatory certainty. Stable regulatory environments enable capital planning. Unstable regulatory environments are difficult to factor into the risk-reward equations required for investment. At this point in time, if you did a survey of global markets, the United States is probably one of the most challenging environments when it comes to regulatory certainty for carbon markets. If you are thinking about energy investments today, and you don't have a good feel for what the price of carbon may be under a number of scenarios, you are introducing a level of unsustainable uncertainty into your capital allocation decision.

Joe Gold

*Managing Director; Head of Commodities – Americas
Barclays Capital*

Fossil Fuels vs. Alternatives. Are we running out of oil and gas? The answer is ... yes and no. Yes, we are running out of cheap energy, but supplies are nearly limitless if we're willing to pay the price. If we make the policy decision to switch from coal (we won't – this is just hypothetical), we could instantly solve the greenhouse gas emissions problem in the United States and the world. But coal is abundant, therefore cheap, and provides millions of jobs in developing countries like China; it will continue to be used for that reason. It's not just cheap, but coal-fired base load power capacity is also reliable: it's available 24/7. This is the problem I see with wind power ... if you happen to have a house boat in the middle of Lake Michigan, wind is available nearly all the time, but not so for the rest of us landlubbers. The problem with wind (solar, too) is availability ... They don't call coal and nuclear "base load capacity" for nothing. They're relatively cheap sources of power production and always available.

Bernard J. Picchi

*Senior Managing Director, Energy Research
Wall Street Access*



Bernard J. Picchi
Senior Managing Director,
Energy Research
Wall Street Access

Luncheon Speaker:

The Honorable Dirk Kempthorne, U.S. Secretary of the Interior



The Honorable Dirk Kempthorne
U.S. Secretary of the Interior

U.S. Secretary of the Interior Dirk Kempthorne appeared as the featured speaker during the conference luncheon. Secretary Kempthorne related stories from his experience in the U.S. Senate, and then focused on the scope of issues that fall under the responsibility of the Department of the Interior, notably off-shore oil and gas development, the coincidence of energy and land conservation efforts, alternative energy and global warming. The following are excerpts from his presentation.

Off-Shore Oil and Gas. The most catastrophic storm in American history [Hurricane Katrina in 2005] resulted in no loss of life associated with off-shore energy production and no well spills. None. Even though 3,000 of the 4,000 platforms in the Gulf were in the direct path of the storm, all of the shut-off valves that are below the ocean floor worked exactly as intended. One hundred fifty times more oil seeps into the Gulf of Mexico from natural cracks in the seabed than is spilled from off-shore platforms.

Directional drilling – visualize this: if you were to put an oil well in Washington, D.C., with directional drilling, you could drill from any area of the District, all the way out to the beltway that surrounds it ... I found it incredible to learn that 185 miles from New Orleans, drilling is occurring some 28,000 feet below the surface of the water – 9,000 feet of water and 19,000 below the sea floor.

Unfortunately, the debate over off-shore energy often seems to be stuck in 1969, the year of the Santa Barbara spill. We spent the past couple of years debating how far out in the Gulf of Mexico we need to go to protect the beaches from the threat of oil spills. Are 100 miles sufficient? 125? 150? ... We don't measure our car safety based on a car of that era – for example, the Ford Pinto. We shouldn't measure the safety record of the oil and gas industry based on 1969 technology.

Energy Development in the Gulf and Alaska. The Minerals Management Service will soon be issuing its final 2007-2012 leasing plan for energy development on the outer continental shelf ... It is a \$1 trillion program. I am pleased that President Bush signed legislation that will allow us to include 8.3 million acres in the Eastern and Central Gulf that has been off limits to energy development ... This includes not only the area in the Gulf, but also 5.6 million acres in the North Aleutian Basin of Alaska that we might offer in the next five-year plan. The Minerals Management Service estimates that these areas have nearly 1.3 billion barrels of oil and 5.8 trillion cubic feet of natural gas. America needs this energy.

Western Energy Development and Conservation Efforts. Our public lands in the West present another huge area of potential energy for our country ... The Green River Basin in Wyoming has enough natural gas to heat 4 million homes. It also has 100,000 deer, 100,000 pronghorn antelope, 40,000 elk, 8,000 moose and 1,400 bighorn sheep. In other words, we have world-class energy resources sitting right below world-class habitat. I do not believe that the two are mutually exclusive. We recently unveiled two new approaches to ensuring that we can get the energy we need while conserving the land – that is wildlife and recreational opportunities for visitors ... Under the initiative, we are investing \$3 million this year and we propose \$22 million next year to help restore nearly half a million acres of federal lands ... In the Green River Basin, for instance, we use landscape-level conservation planning – as opposed to acre-to-acre planning – to develop the Basin's energy resources, while conserving the wildlife habitat and the recreational opportunities that have made the area so popular for hunters, anglers and recreationalists. We will plant sage grass, aspen and other native vegetation, restore water sources for wildlife, and form partnerships to complete other conservation projects.

In addition to this initiative, we recently took another important step to conserve Western landscapes and wildlife habitat ... What traditionally has been a footprint of 8-10 acres per wellhead is now [through directional drilling] down to half an acre per wellhead – tremendously shrinking the footprint and establishing buffer zones to protect wildlife. In Wyoming, there are two major big-game herd corridors. They have been there for centuries, and it is incumbent upon on us, as stewards, to ensure that they are there for centuries to come – to not inadvertently continue to encroach and cut them off. We are burying power lines and pipe lines next to existing roads. We are using technology to monitor well activity from remote locations, so that you need not go out there on frequent trips, therefore reducing traffic. I'm confident that we can help mitigate many of the impacts on the land and wildlife that have raised such concerns in recent years.

Alternative Energy. Alternative energy is clearly another area where there are vast opportunities. We need to develop new technologies such as wind and geothermal, biomass and methane hydrates, so that we can move in the direction of being less dependent certainly on foreign fossil fuels, but all fossil fuels. It will take time to get there.

Arctic Energy and the Polar Bear. The proposed listing of the polar bear as a threatened species under the Endangered Species Act made headlines in December. In that proposal, scientific evidence of sea ice melting linked to rising temperatures in the Arctic was presented as a possible threat to the long-term survival of the polar bear ... Some people have claimed that listing the polar bear would hinder oil and gas development in the Arctic. We do not believe that would happen. The oil and gas industry in Alaska has successfully coexisted with polar bears for decades ... Likewise, some people have worried that if the bear were listed, any activity that could contribute to global warming would be subject to restrictions under the Act. They fear that a power plant operator in Louisiana would have to consult with the Service on the potential effect of its emissions on polar bears. Again, we do not expect this result.

Global Warming. Whether we list the polar bear or not, however, the issue of climate change and its effect on Arctic environment is before us ... The Administration has invested \$29 billion in researching and mitigating climate change. I met with native Alaskans, many of whom are seeing significant changes in environment linked to rising temperatures. One of the first on-land oil wells in the North Slope, what is known as the J.W. Dalton Well, was once at least a quarter of a mile inland. It is now located in the Beaufort Sea. Clearly, the issue of climate change is here to stay. I believe it is important that we view it through the lens of the best possible science.

Session Three: Federal and State Regulatory Activity, and Cross-

Moderator: Marc D. Machlin – Partner, Pepper Hamilton LLP

Session Three focused primarily on the intricate balance between state, regional and federal regulatory powers within the energy sector and the implications for infrastructure improvements, increased power production capacity, and progress against long-term environmental goals. The panelists continued the day's discussion of how to address both global warming and the increasing demands for energy. Most agreed that the problem will require action on multiple fronts – cleaner coal technologies, R&D in renewable energy sources, a renewed use of nuclear power, and more comprehensive standards for greenhouse gas emissions. Speakers expressed some frustration over the U.S. government's slow movement toward federal standards, and the potential resulting problem of every state setting its own standards.



The Hon. Joseph T. Kelliher
Chairman
Federal Energy Regulatory
Commission

Featured Speaker: The Honorable Joseph T. Kelliher – Chairman, Federal Energy Regulatory Commission

Power Grids. We do not have a national power grid. We do not have state grids ... We have regional grids, and we have regional power markets. The markets are regional, but some of them are also international. Look at the Western United States. The Western interconnection is not limited to the United States; it extends very much into Canada as well as part of Mexico ... Also, the regulatory scheme for power is federalist. Federal regulation is important, but the state role is much more important than it is in other regulatory contexts.

Natural Gas Markets. The recognition that we are increasingly going to rely on liquefied natural gas imports to meet the U.S.-Canadian gas demand is significant. Right now, LNG imports are the fastest-growing source of gas supply in the United States, and that will remain the case for years. That has implications. If the gas market is no longer North American, if it is broader and more international than that, suddenly we have to be interested in how much gas storage capacity there is in Europe ... Storage is important, too, as a hedge. It is important as a means to reduce volatility of natural gas prices. It is important to recognize that U.S. gas demand has increased about 25 percent since 1988-1989, but our gas storage capacity over that same period has increased a total of 1.4 percent. I think there is a relationship between the two. We have seen demand rise, but storage has been basically flat, and we have seen raising volatility during that same period. We are trying to expand storage capacity in the United States.

Selected Panelist Remarks:

Electric Power Infrastructure. The effort to modernize and expand the electricity infrastructure will require a focused and sustained collaboration among investors, regulators and industry ... Naturally, addressing and resolving U.S. energy infrastructure siting problems will require the cooperation of many state regulatory officials. Therefore, FERC has been authorized to site intrastate electric transmission lines when cooperation has failed and investment is required and otherwise secured.

Renewables Cheaper Than Emission Caps. Researchers have found that increasing the use of renewable energy is cheaper than the regulations that force reduction of emissions. Therefore, the effort to increase production incentives and investment opportunities for the use of renewable fuels to replace oil and cut emissions should come as no surprise.

Vincent DeVito
Of Counsel
Pepper Hamilton LLP

Border Implications

Not an Option To Do Nothing. We are going to have a [climate change] bill out, and I don't mean to imply by any stretch of the imagination that we are going to solve climate change with this initial bill ... This will be a start ... Clearly, it is going to be difficult to get countries like China and others to do anything if we do nothing, so doing nothing is no longer an option.

All of the problems we face with regard to energy independence and climate change are just technological questions, in my mind. When this country said it was going to put a man on the moon, we didn't know how to do that, but we figured out how to do that ... You can't tell me that we can't figure out a way to take a resource that is in our country and is abundant, and burn it cleanly enough so that it is not a net contributor to the problem of greenhouse gas.

The Honorable Mike Doyle (*D-Pennsylvania*)
Member, U.S. House of Representatives
Member, House Committee on Energy and Commerce

Federal vs. State Regulations. Lawmakers are currently struggling with whether to continue to allow states to implement their own regulations, or to impose a federal cap or a cap-and-trade system to regulate greenhouse gas emissions. Having 50 different state regulations to comply with would have tremendous implications for the energy industry. If federal regulations are imposed, we have to ensure they don't weaken any successful state programs that are already in place. The federal government really has an important role to play in ensuring that the energy supply in this country is both reliable and safe and that the interstate commerce and energy markets can occur. Similarly, as these markets become larger, the federal government has to play an active role in adopting environmental policies that adequately protect state consumers from increased emissions while recognizing the competitive nature of these markets.

The Honorable Mike Ferguson (*R-New Jersey*)
Member, U.S. House of Representatives
Member, House Committee on Energy and Commerce

All Efficiency Measures Needed. We haven't seen the beginning of what we can deliver on energy efficiency ... It is not just going to be any one or two things that are going to get it done. You're going to need it all ... To get the job done, you're going to need nuclear, you're going to need energy efficiency, you're going to need renewables, you're going to need clean coal technologies, and you're going to need carbon capture and storage.

Thomas R. Kuhn
President
Edison Electric Institute

Balancing Energy and Environmental Policy. We have to balance energy and environmental policies appropriately. To the extent that we wander down an energy policy path without thinking about environmental policy, we are just setting ourselves up for going into a ditch. If we wander down an environmental policy path without thinking about the energy policy implications, we will head off into a ditch on the other side. It is not a sustainable policy either way. You have to keep them in some kind of balance.

The federal/state interface is a key part of how we resolve those questions. There is a lot we can learn at that interface. In many cases, states are way ahead of us, because they are actually closer to the popular electorate. To the extent that states are following the public more closely than we are at the national level, it is important to see what we can learn from them.

Dr. Robert M. Simon
Staff Director
U.S. Senate Committee on Energy and Natural Resources



Thomas R. Kuhn
President
Edison Electric Institute



Dr. Robert M. Simon
Staff Director
U.S. Senate Committee on
Energy and Natural Resources

Session Four: Geopolitical Considerations

Moderator: George A. Lehner – Partner and Vice Chairman of Executive Committee, Pepper Hamilton LLP

Session Four looked at how geopolitical issues are impacting the range of energy issues, especially energy security. Spencer Abraham, former U.S. Secretary of Energy, highlighted the fact that, with nearly unlimited global demand and tightening production and supply, political conditions and events have a heightened potential impact on the world's energy economics. Panelists elaborated on the specific challenges, as well as opportunities, represented by each major area: (1) huge and increasing demands in China and India present a significant investment opportunity, but their current drive for modernization and economic growth is stronger than their commitment to addressing serious environmental concerns; (2) Europe may be leading the way in some alternative energy technologies such as wind, but is still far too dependent on imported oil and gas; and (3) much of Latin America has successfully privatized its power generation and distribution system, but with no natural fuel reserves of their own, they are beholden to foreign suppliers and must subsidize costs so that consumers can afford to buy. Solutions discussed ranged from a new focus on the potential for nuclear power, to stepped-up work on clean coal technologies, to realistic partnerships with China and India to work on a balanced agenda of economic progress and environmental responsibility.



The Hon. Spencer Abraham
Chairman and CEO
The Abraham Group LLC
Former U.S. Secretary
of Energy

Featured Speaker: The Honorable Spencer Abraham – Chairman and CEO, The Abraham Group LLC; and former U.S. Secretary of Energy

Geopolitical Forces, Tight Markets. I think that geopolitical events – natural disasters, terrorist activity and a variety of factors largely beyond the control of decision makers – are going to have a substantial impact on energy and energy security, in particular. Virtually every significant energy producer is a swing supplier and anything that goes wrong in any significant producer's country automatically translates into the potential for major disruption in the energy marketplace.

You have an infinite demand curve, and you have a supply side, or a production side, that has an extremely difficult time keeping up. You have very limited spare production capacity, you have very limited spare refinery capacity, so you have tight markets and a situation in which geopolitical factors have an ever-greater impact on the process.

A Case for Nuclear. Nuclear is the one immediately available existing technology capable of large-scale, cost-efficient energy production with limited emissions ... There is less political resistance, because the people who are anxious to fight global warming recognize that it is very difficult to address global warming without renewables and nuclear energy. It is also easier to make the case on public safety than it has ever been. There is a growing financial market interest and awareness of the relatively attractive costs of nuclear energy versus alternative forms of power.

Coal. It is simply inconceivable to me that this plentiful and comparatively cost-effective source of energy will not be part of the mix. So, what we will see are very substantial investments both from the government and the private sector in carbon sequestration and clean coal technologies. We will likely see the development of the coal-to-liquids industry slowly, but surely, take place.

Transportation Fuels Need Longer-Term Focus. The problem with the government funding is that we keep changing research priorities. When I was in my first year as Secretary, the transportation topic of the day was hybrids. In my second year, it was clean diesel. In my third year, we launched the hydrogen initiative and then it

became exotic forms of biofuels. Now, we are looking at the battery issues and plug-in hybrids. We should, of course, pursue multiple directions, but we have to have some consistency to this and a commitment to a global program that will work.

Selected Panelist Remarks:

High Demand, Lagging Supply, High Disruption Risk. A main cause of rising oil prices is a demand shock: Some 2 billion people, mainly in Asia, are catching up to the 1.5 billion who enjoy modern energy services. Second, supply isn't keeping up. Despite high prices, supply response is disappointing, due to resource nationalism, input costs and accelerated decline rates. Finally, geopolitical risk is high. During the mid-1980s, Iran and Iraq were throwing missiles into tankers in the Persian Gulf, yet oil prices fell sharply. Despite high disruption risk, non-OPEC supply and spare OPEC production capacity were relatively high, and thus the market had a buffer. Now, it is just the opposite. We are seeing disappointing supply, low spare capacity and rising prices amidst enduring disruption risk.

Robert McNally

*Managing Director, Tudor Investment Corporation
Former Special Assistant to the President, National Economic Council
Former Senior Director for International Energy, National Security Council*



Robert McNally
Managing Director
Tudor Investment Corporation

Politics and Capital Flows. Investment bulls are searching for larger and more strategic investments. Today, we are seeing more of that capital being allocated to energy projects, such as conventional energy plants, renewable projects including wind and biofuels, and, of course, large transmission projects and distribution assets ... You go to the north of Germany and you see wind farms from Hamburg all the way up to the North Sea. You see the same thing in Denmark and Spain. In China and India, you see the effort to develop nuclear power and the incredible investment by large global funds. These countries seem to be setting a policy to attract that capital. The geopolitical risks will stimulate the discussions on regional and national security, but it will be stable and predictable regulatory policy that will stimulate the investment in these assets.

James D. Rosener

*Partner and Chairman of International Practice
Pepper Hamilton LLP*

Biofuels. In March, President Bush and Secretary Rice visited Brazil to launch a new partnership with the Brazilian government in the area of biofuels ... The partnership calls for the United States and Brazil, the two largest producers of ethanol in the world, to cooperate on the development and deployment of biofuels. We are working bilaterally, regionally and globally to expand this partnership, and we think it has tremendous potential.

Asia Pacific. We are working to deal with the challenge of growth in India and China – how to bring India and China into the global energy system, how to deal with the tremendous demand issues ... We have a new focus on voluntary and practical measures to create investment opportunities, to work with the private sector and to remove barriers to the introduction of clean and more efficient technologies.

Europe. We get about 90 percent of our power from domestic coal and domestic gas, but Europe is in a really different situation. They are going to move from about 60 percent to 85 percent dependence on imported gas, for example, over the next 25 years. They import around 90 percent of their oil. They are very, very vulnerable. So, we've been talking to the Europeans largely about the challenge of supply diversification.

Paul Simons

*Deputy Assistant Secretary of State for
International Energy, Sanctions and Commodities
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Paul Simons
Deputy Assistant Secretary of
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Session Four: Geopolitical Considerations (continued)

Latin American Geopolitical Concerns. The first country in the world to privatize its power system was Chile in 1982, and it is now fully privatized. That system was adopted by almost every large country in Latin America (and many countries elsewhere in the world). Even the smaller countries have turned to private companies to build new generation capacity. The system works ... The point is, if you don't mess with the market and you set up an open, competitive system, it works – that is the market they're in. It is a largely deregulated, open market.

Need Regional Integration. There is no natural oil or gas that has been found in Central America. And these countries are, at a minimum, 25 percent dependent on oil-fired generators; at the high end it is 80 percent. Most of these governments are subsidizing the wholesale markets because their consumers just can't pay. These countries are too small to build an LNG gasification plant on their own; they need regional integration. It is not happening.

Mexico. Having too many political parties in a country hinders effective legislative bodies. Brazil has 11 political parties; Ecuador has 13. Mexico, which has only three, is a great example of the fact that it takes multiparty discussion. Mexican President Zedillo, two presidents ago, tried unsuccessfully to privatize the electrical generation system – lifting the prohibition against foreign involvement. The same was true with ex-President Fox, and right now, this is one of President Calderón's major policy initiatives. We'll see whether he has the political savvy to be able to pull this off. What it means is that the necessary investment going into Mexico is being greatly hindered by some constitutional prohibitions.

J. Scott Swensen
Chairman
Conduit Capital Partners, LLC



Dr. Harlan L. Watson
Senior Climate Negotiator and
Special Representative
U.S. Department of State

Realism on China and India. We are not going to see developing countries reduce their energy consumption. Two billion people with no access to modern energy services – the demand is going to be there and developing countries will need to expand their growth. But the idea that China and India are somehow going to slow down that growth is just unrealistic. The challenge is formidable. If we think over the course of this century that we might have to literally triple or quadruple the energy supply and the energy production of the world, with essentially no emissions, we have got to get a lot of gigatons of carbon out of the atmosphere.

We are keeping the focus on what it is that China and India, in particular, are concerned about. Yes, they are concerned about climate change. But, in addition to air pollution, they also are concerned about maintaining economic growth, reducing poverty and establishing energy security ... So, what we need to do is to address this bundle of issues in ways that can reduce our greenhouse gas emissions.

Dr. Harlan L. Watson
Senior Climate Negotiator and Special Representative
U.S. Department of State

About Pepper Hamilton and The Abraham Group

Pepper Hamilton LLP (www.pepperlaw.com) is a multi-practice law firm with more than 450 lawyers providing corporate, litigation and regulatory legal services to leading businesses, governmental entities and nonprofit organizations around the world.

The Abraham Group LLC (www.abrahamgroupllc.com) is an international strategic consulting firm headed by former U.S. Secretary of Energy and U.S. Senator, Spencer Abraham. The firm provides advice and assistance to clients on business development, marketing, regulatory and government affairs, policy creation and communications strategies in the United States and other key international markets.

Pepper Hamilton and The Abraham Group formed a strategic alliance in 2006 to provide a comprehensive range of legal and business consulting services focusing primarily, but not exclusively, on the energy sector.

The combination of Pepper Hamilton's experience with the legal and regulatory issues facing energy companies, along with The Abraham Group's unparalleled strategic and political advice, gives clients a powerful advocacy team – one that can be found with no other law firm.

