

Carol Battershell's Remarks

Purdue University Energy Security Summit

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Implementing Strategies to Reduce Foreign Oil Dependence

Panel Moderator: [Brian Lamb](#), President and CEO, C-SPAN

- **Liquid Fuels Alternatives**
[Amy Myers Jaffe](#), Wallace S. Wilson Fellow in Energy Studies
Baker Institute Energy Forum, Rice University
- **Auto Industry Perspective**
[Sue Cischke](#), Vice President for Environmental and Safety Engineering,
Ford Motor Company
- **Oil Industry Perspective**
[Carol Battershell](#), Vice President, Alternative Energy, BP

Introduction

- Good morning everyone. Thank you for the opportunity to participate in this discussion on energy security and to talk about what we're doing in BP to provide secure and sustainable supplies of energy for America.
- I am very excited to be speaking here. This topic is important to me (I have been working on alternative fuels in BP for the last six years) and because Indiana is important to me (because I am a Purdue grad).
- And Indiana is also important to BP - - We employ around 2,000 people here, and we pay more than \$50 million a year in state taxes. One of our largest

refineries is located in Whiting, Indiana, where we recently invested \$130 million so the refinery can make around 36,000 barrels a day of ultra-low sulfur diesel. And we have more than 360 BP stations throughout the state providing quality fuels and services for our loyal customers.

- And of course energy security is also important to BP - as a global business operating in 100 countries, we are acutely aware of the issue of energy security and the environmental debate on climate change. So as well as looking to develop secure sources of energy, we are also developing low -carbon sources of electricity and fuels.
- But this is nothing new to BP – we have been blending biofuels in the U.S. for over 25 years. In fact, we are one of the largest blenders of biofuels in America and throughout the world.
- Along with our colleagues at Ford , we have supported research at Princeton University that shows how a spectrum of low -carbon technologies can contribute to reducing greenhouse gas emissions.
- These include solutions like energy conservation, biofuels, solar, wind, natural gas (which has just half the carbon dioxide emissions of conventional coal), clean coal and carbon capture and storage.

- We see energy diversity as the key to America's energy security. And we foresee major advances in developing alternative energy in the U.S.
- We also expect to find new ways to maximize America's production of oil and gas. And, as an international company, producing and selling in many countries, we also have confidence in the global market's ability to deliver.
- In all these areas we're involved in some really profound changes. If we're going to meet the world's demand for energy, our industry needs to be innovative – and that's what's happening.

U.S. oil and gas activity

- Look for example at what we're doing to help the U.S. develop domestic reserves of oil and gas.
- In the Gulf of Mexico, we're investing \$15 billion to push technical know-how out to new boundaries while also increasing oil and gas supplies in the U.S. For example, we're using new, state-of-the-art seismic imaging to see what lies deep beneath the salt layer. Our Thunder Horse project, the world's largest semi-submersible platform, will be drilling in waters more

than 6,000 feet deep, and will be producing oil from a reservoir nearly 20,000 feet below the sea bed.

- In Wyoming, we're investing over \$2 billion over the next 15 years to drill about 2,000 wells and testing new ways of extracting untapped natural gas. This will allow us to double our natural gas production in the state.

Alternative Energy and US activity

- While the majority of today's discussion is on fuel for transport, I don't want us to overlook that diverse, domestic energy sources for electricity will also be critical to improving America's energy security.
- This past November, we launched BP Alternative Energy, which will invest \$8 billion over the next ten years, to provide low and zero-carbon electricity from solar, wind, clean natural gas and hydrogen power with carbon capture and storage
- BP is already one of the world's leading solar energy companies. We have been in this business for 30 years, and this growing, global business is headquartered in Maryland. Sunlight is an abundant, domestic energy source and solar technology is improving at a rate that BP predicts in sunny areas

solar energy at your home will be economic without any incentives within 10 years.

- Wind is another abundant domestic resource. We agree with the President's goal to have 20% of electricity from wind by 2020. And we recently announced two significant agreements that will enable BP to become a leader in North American wind development. Our joint venture with Clipper Windpower and acquisition of Greenlight Energy give us a portfolio of 8000 MW of projects to develop in the US. To understand this scale - 8,000 MW of electricity is enough to power about three-and-a-half times the number of homes in Indianapolis.
- We've also unveiled plans for the world's first two commercial hydrogen power plants – one of which is here in the U.S. Hydrogen power with carbon capture is an exciting new technology which breaks down a fossil fuel (a hydro-carbon) into hydrogen and CO₂ gases then burns the hydrogen for fuel and captures and stores the carbon dioxide. The process results in some 90% of the CO₂ being captured and stored. The BP Hydrogen Power Project in California will set several milestones for the industry and this country: the largest hydrogen-fired power generation facility in the world, generating 500 MW of low-carbon electricity enough

power for about half a million homes; the lowest CO₂ emissions in the world for an integrated gasification combined cycle plant; and some 4 million tonnes of CO₂ a year would be eliminated from the atmosphere and the CO₂ will be injected into rock formations of an existing oilfield both stimulating extra domestic oil production and permanently trapping CO₂. The project has the support of the Governor of California.

- We believe hydrogen power with carbon capture will prove itself to be a critical technology, because it will unlock the enormous potential of clean coal power, coal being a major domestic source of energy in the United States. Clean coal would achieve the twin policy objectives of safeguarding US energy security and reducing damaging emissions.
- We recently announced a further step forward in our hydrogen power with carbon capture business through a planned technology partnership with General Electric. The companies plan to combine their respective technology strengths in carbon capture and storage and gasification to bring this clean coal technology to reality.

Alternative Transport Fuels and US activity

- So there is a lot to do and BP is doing a lot on secure and sustainable power solutions. But now I will move onto what are the challenges and what is BP doing on alternative transportation fuels.
- I'll focus on biofuels because they will be a major strategic energy source for the U.S. – providing secure, sustainable supplies of energy, as well as a strong market for agriculture.
- I recognize the interest of Senator Lugar on this topic and the major contribution that he has made in the development of the biofuels industry.
- Further, I am aware that Senator Lugar and Congressman Visclosky have teamed up to secure the resources to build an ethanol plant in Rensselaer, Indiana.
- This is ethanol country – and BP is part of the ethanol business. Worldwide, BP has approximately 10% of the global biofuels business.
- Last year, we blended and sold 590 million gallons of bio-ethanol – 575 million of them in the U.S. – eliminating around 1 million tons of carbon dioxide emissions.
- We also sold 70 million gallons of bio-diesel, and we expect to see those numbers grow significantly this year.

- But this is only a start. While ethanol represents around 3% of all transport fuel in the U.S. today, the U.S. Biomass Research and Development Technical Advisory Committee has forecast that biomass will supply 20% of transport fuel by 2030.
- This is encouraging news, but if biofuels are to fulfill their potential, BP believes we need to move toward a new generation of products designed to meet the needs of vehicles and the consumers who own them.
- Today's corn and sugar-based ethanol is a great foundation and its use will continue and grow – but it needs to be supplemented by new generations of ethanol and by other biofuels.
- Conventional biofuels are typically used in limited blends, up to 10%, and derived from intensively farmed crops. They have relatively low energy content and deliver modest environmental benefits. In addition, the amount of conventional biofuels that can be produced is limited because there is competition for the feedstocks from the food industry.
- So we share Senator Lugar's view – indeed that of the President and others too - that biofuels derived from grass and woody crops or crop residues (often called ligno-cellulosic crops) offer a way forward.

- We need to develop advanced molecules using advanced processes – particularly from sources that are not used for food – like these grass or woody crops or the organic portion of municipal solid waste.
- Such fuels offer the potential to give us higher energy yields and a wider range of feedstock options. They also have the potential to deliver significant greenhouse gas emission reductions – something like 80-90% against conventional fuels. And some advanced biofuels can be used in far higher percentages than conventional biofuels.
- So what are we doing to enable biofuels to make such progress?
- As a first step we have announced plans to produce and market new generations of biofuels with DuPont – bringing together DuPont’s biotechnology capabilities with our expertise in the fuels market.
- Our first product together will be biobutanol, which has a high energy content and actually can be blended at greater concentrations than ethanol for use in most vehicles on the road today.
- Biobutanol can be blended with gasoline, and is complementary to ethanol ... in that it can be used together with it, and it can enhance the performance of ethanol blends in gasoline.

- It's also less susceptible to separation in the presence of water and so it can be shipped using the existing gasoline distribution channels.
- Biobutanol and ethanol are produced from the same feedstocks, such as corn, wheat, sugar beet and sugar cane. Also, existing ethanol plants can be economically retrofitted for biobutanol production.
- So biobutanol offers a new alternative – a versatile extender of the fuel supply – that can be used alongside ethanol. But our vision doesn't end with biobutanol.
- We have also announced plans for a university-based Energy Biosciences Institute in which we will invest \$500 million over 10 years. This will bring together scientists from different biotechnology disciplines. It will be the first institution of its kind, and it will perform open research as well as proprietary research for BP. Our vision is that such concentrated research work among a community of specialists could lead to breakthroughs in bio-energy comparable to those seen in bio-medicine.
- Our aim is that this institute will make significant contributions in advanced biofuels – fuels which offer increased energy security, environmental and performance benefits; and fuels that can be
 - used in existing vehicles,
 - distributed through existing infrastructure,

- produced with advanced processes and
 - derived from abundant feedstocks that don't compete with food production.
- We believe that achieving these benefits at the lowest cost to our customers can only be achieved in competitive markets that reward the most innovative participants.
- We will also be rolling out a branded E85 product in a select number of markets this year as a step in the journey to deepen our understanding of biofuels marketing. We want to give our Flex Fueled Vehicles customers a choice when they fill up their vehicles, and we want to learn about their driving experience.
- So this is what BP is doing, but what else is needed? Essentially, BP's job is to offer solutions, but we need a policy framework from the government that promotes diversity and enables different solutions to compete in the marketplace.
- Our concern is that if policy is directed solely at creating a market for the first-generation of biofuels, it may discourage the emergence of the second-generation, which we believe holds great potential.

- And we also prefer to see market-based solutions that encourage innovation, rather than mandates which oblige people to use a particular product.

Increasing investment elsewhere

- Let me close by widening the view once again.
- We're doing all we can to increase home-grown energy, but as an international business, we are very aware that while America can certainly reduce its dependence on imports – it cannot end it anytime soon.
- Neither for that matter can China, India nor Europe - which incidentally imports 80% of its energy.
- So it's important that we have a resilient, open and dynamic market.
- It's true that some producer countries raise concerns – conflict in Iraq, violence in Nigeria, political issues in Iran, and upheaval in Venezuela.
- However it is also true that the global market has continued to deliver energy in the face of wars, terrorist attacks, hurricanes, strikes and political tensions of all kinds. We have a robust world market and it's important to keep it that way.
- What is needed now is international cooperation. I note that Senator Lugar has called for a cooperation

agreement with India and China. In a similar vein, we have suggested expanding membership of the International Energy Agency to include China, India, Russia and the OPEC members.

- As a global company, part of our job is to build capacity and encourage development in producing countries so that they can be stable, secure sources of supply.
- So, for example, we have supported a regional development program in Azerbaijan, Georgia and Turkey, where we and our partners have just completed a more than 1,000 mile pipeline to bring Caspian oil to world markets.
- In Russia, our joint venture, TNK-BP, is using new technology to revitalize aging oilfields and set new standards in safety.
- And in Angola, the development of offshore oilfields is bringing new revenues and jobs to a country which was recently a war zone.

Conclusion

- To conclude, BP has a major stake in America's energy future and we intend to carry on delivering energy that is secure and sustainable – for home and abroad.

- To do that, we want to blend innovative technologies with innovative thinking and innovative policy.
- On domestic and clean electricity we are making substantial investments to grow solar, wind, natural gas and hydrogen power.
- In the specific area of biofuels we want to help drive progress towards new generations of products.
- The challenge is substantial but I believe that as a country we have the resources, expertise and imagination to meet it. And as a business, BP is keen to make its contribution. And we look forward to continuing with you on the journey.
- Thank you very much.

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