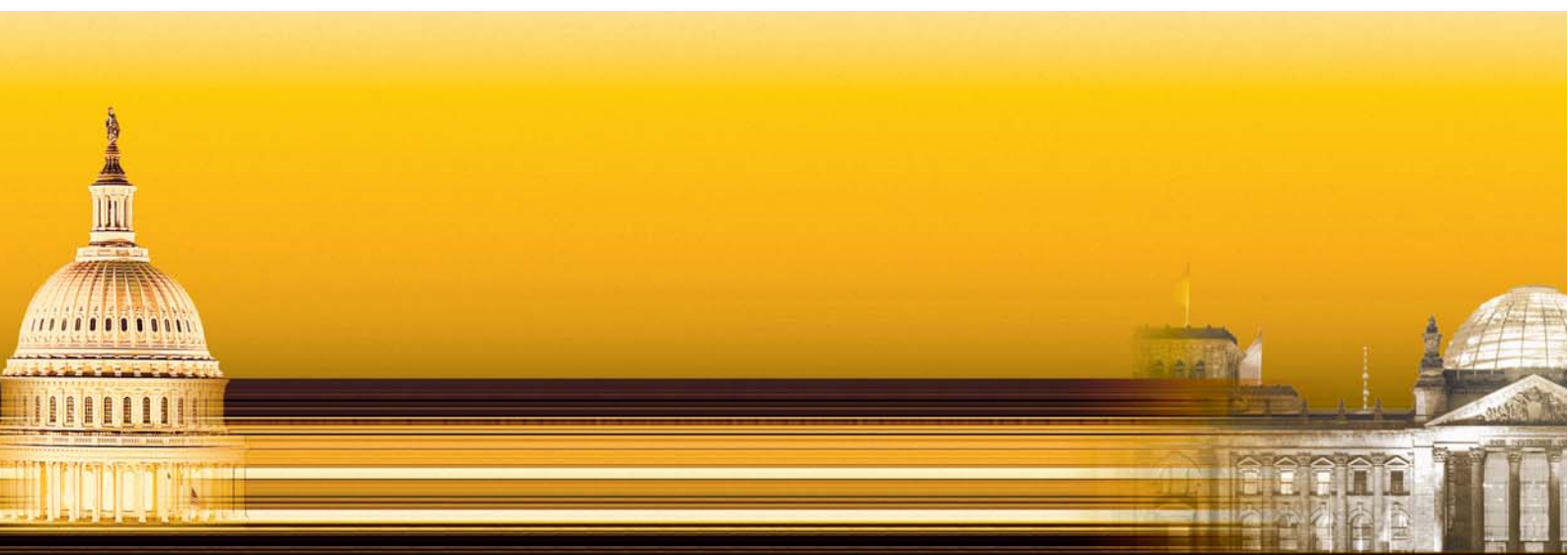


3rd
THE TRANSATLANTIC
MARKET
CONFERENCE



GROWTH & SECURITY:
ENERGY AND
ENERGY TRANSPORTATION

GROWTH & SECURITY: ENERGY AND ENERGY TRANSPORTATION

hosted by

the DRÄGER FOUNDATION, Lübeck,

the DIN GROUP, Berlin,

the BDI – FEDERATION OF GERMAN INDUSTRIES, Berlin,

and the UNITED STATES CHAMBER OF COMMERCE,
Washington, D.C.

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GERMAN EMBASSY TO THE UNITED STATES, Washington, D.C.

REPRESENTATIVE OF GERMAN INDUSTRY AND TRADE (RGIT),
Washington, D.C.

THE ATLANTIC TIMES – A Monthly Newspaper from Germany,
Washington, D.C.

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Vice-President, Europe & Eurasia, International Division, U.S. Chamber of Commerce, Washington, D.C., USA

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Dr. Arend Oetker

Managing Partner, Arend Oetker Holding GmbH & Co. KG, Berlin;
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Dr. Flynt Leverett

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OPENING SPEECH

Energy Security Solutions – A Common Transatlantic Concern

KATHERINA REICHE, MP

Deputy Chairwoman, CDU/CSU Parliamentary Group on Education,
Research and the Environment, German Bundestag, Berlin, Germany



■ | The EU-USA summit was a milestone in transatlantic partnership. It opened the door for a new global partnership, greater cooperation and new opportunities. Together we are paving the way for peace, prosperity and a sustainable way of life, not only for Europeans and Americans, but for the whole global community. Now it is our mission to animate this new partnership. We need to achieve visible progress for both companies and the people.

One of the key issues of the summit was the discussion of energy and climate change. If Europe and America cooperate on these major challenges and if we achieve progress, the benefit of a transatlantic partnership will be evident to everybody.

There are at least four reasons why the secure availability of energy and climate change dominates the international agenda:

- The demand for energy is expanding around the world at a dizzying pace. This is being driven by the growth of the world's population and increasing prosperity, particularly in threshold countries.
- Our growing energy consumption is also inflicting more and more damage on the world's climate. This is not just imposing an increasingly heavy environmental burden, but an increasingly onerous economic burden as well. Climate change will also exacerbate flows of refugees, confronting us with new social and security policy challenges.
- Our fossil resources are dwindling. It is not of decisive significance how long our crude oil and gas reserves are going to last or whether we have already passed peak oil availability. The fact is that the increasingly short supply of these commodities is already being reflected in rising prices. We would therefore do well to prepare ourselves for long-term shortages.

- Most of our fossil resources are concentrated in politically sensitive crisis areas or geographically difficult regions. In addition to this, it is to be observed that energy resources are increasingly being placed under state control in certain countries. We cannot fail to perceive the extent to which energy policy has become a part of foreign and security policy nowadays. This is why we have to enter into strategic partnerships. We must work for open energy markets, fair competition and reliable terms of delivery.

So we are facing two global problems that have to be dealt with: the security of energy supplies and climate change. The two are closely linked and it will only be possible to resolve them in conjunction. This is why Europe and the USA should be working together to deal with these issues. If we can do this, we will undoubtedly be able to manage the risks we face.

The EU-USA summit was an important step in this direction. Hopefully it will be possible to build on this and reach binding agreements during the G8 summit in early June. A clear signal from the leading industrialized states that more will be done to protect the climate and ensure energy security could be the decisive impulse needed to get the threshold and developing countries on board when the World Climate Conference takes place at the end of the year and to put the preconditions in place for an effective »son of Kyoto« agreement.

By working together, Europe and the USA can do a very great deal to ensure that the direct effects of climate change are at least mitigated. Climate protection and energy security could provide an important starting point for action on these issues. There are many areas in which we can cooperate pragmatically hand in hand: the development of clean coal-burning power stations, the further evolution of renewable energies, research into biofuels, or fuel cell and hydrogen technology.

There are opportunities for cooperation in these fields from which we will all benefit. Firstly, because we can combine and bundle the technological expertise of Europe and the USA. Secondly, we will all benefit from cooperation because it will enable us to reduce the length of time it takes to carry out research and so ensure costs remain manageable. If we do not develop these new technologies and bring them to market maturity, others will do it instead. The markets for energy security and climate protection technologies are currently being divided up. And we know that it is very difficult indeed to win back market share once it has been lost.

A look at the capital markets shows how important this field is for the future. The capital market is now exerting pressure on companies to make stronger commitments to climate



protection, an example being the Carbon Disclosure Project, a collaboration supported by 280 major investors with assets of more than US \$40 trillion.

If Europe and the United States do not take credible action on climate protection, we will hardly be in a position to convince the threshold countries that they bear a shared responsibility for our ecological future. Anyone who demands cooperative action from others must set a good example themselves.

The problems of climate protection and energy security lead to one clear, general conclusion: energy policy must concentrate on energy saving, energy efficiency and renewable energies. Energy efficiency and an expansion of renewable energies will involve the comprehensive modernization of our infrastructure and capital assets, technological innovation and the development of important future markets. The careful management of energy by the industrialized and threshold countries is also a form of applied security policy because it will reduce the risk of conflicts over the distribution of resources and enable the developing countries to gain access to affordable energy. Our response to the growing demand for energy and our efforts to reduce climate damage and air, soil and water pollution therefore need to be combined with measures that allow the world's poorest people to have access to energy resources. We need to collaborate closely on these issues, creating the preconditions for energy supply systems robust enough to cope with the challenges of the future.

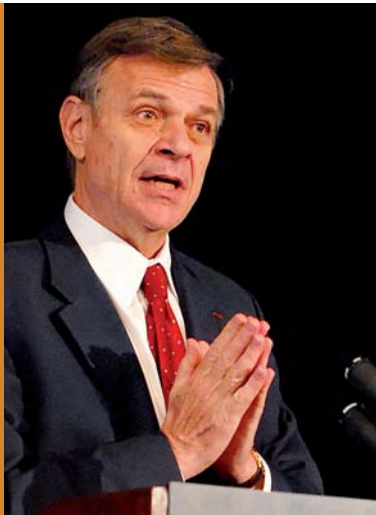
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| PANEL DISCUSSION

Energy and Energy Transportation Security: Fields for Transatlantic Cooperation & Regulation

PLENARY SESSION



Moderator:

PETER GOLDMARK

Program Director,
Climate & Air,
Environmental Defense,
New York, NY, USA

Welcome

by **PROF. DR. DIETER FEDDERSEN**

Member of the Board, Dräger Foundation, Lübeck

It is with great pleasure that I welcome you all on behalf of the Dräger Foundation to our third joint Transatlantic Market Conference, which is for the third time organized in cooperation with the DIN Group, the U.S. Chamber of Commerce and the Federation of German Industries, the BDI. We are also more than grateful for the renewed support of the American Chamber of Commerce in Germany, the AICGS, the German American Business Council, the German Embassy to the United States, the Representative of German Industry and Trade (RGIT), and last but not least, the Atlantic Times.

Today we want to talk about a topic which we think is as timely as it could be in the wake of Chancellor Merkel's visit to the U.S. two weeks ago – energy and energy transportation security. Climate change, and the close link between climate change and the consumption of fossil energy was, for a long time, a rather abstract phenomenon not only in the United States, but also in Europe, and one that could be easily pushed out of people's minds. Meanwhile this attitude has changed dramatically on both sides of the Atlantic!

Although there is not yet a consistent overall American energy and climate policy, 46 out of 50 U.S. states have adopted laws for the promotion of renewable energies. Meanwhile the USA has become the world's largest market for wind power, and the U.S. Government's promotion of biofuel has triggered an unprecedented boom in the production of corn for ethanol in the mid-west.

I am afraid these changes in perception and action on this side of the Atlantic are still not totally recognized in Europe. Instead, the U.S. is much more often just criticized for not having ratified the Kyoto Protocol and still perceived as simply ignorant and unconcerned about the twin problems of global warming and energy insecurity. Chancellor Merkel made the turnaround in the EU's energy policy towards sustainability, efficiency and supply security a top priority in her EU presidency. Thus Germany particularly appreciates the change in thinking in American society and politics. We would be pleased if this conference could contribute to a less biased view of the U.S. in the rest of the world in this respect.

Furthermore, there is also a growing awareness on both sides of the Atlantic that climate protection and energy security are global responsibilities that need to be addressed by joint action. In particular with regard to possible future conflicts over increasingly scarce resources in the world, a trustful cooperation between the U.S. and the EU is an undeniable pillar of international security policy and security architecture.

This is particularly true if one looks at the future development of energy consumption worldwide – 33% plus by 2020 – and at the enormous energy import dependencies with which Europe especially has to cope, but also the U.S. In terms of energy resources, both the U.S. and the EU are dwarfs rather than giants.

Much remains to do on our way towards a sustainable and secure energy supply, but we *can* do it! We need global strategies and binding international agreements that go far beyond Kyoto. Let us also talk about these perspectives today. I am pleased about the great interest that this conference has caused, and thank you all very much for coming. I wish us a very constructive and stimulating day.



Welcome

by **DR. TORSTEN BAHKE**

CEO, DIN German Institute for Standardization,
Berlin, Germany



Between Europe and the USA we face a problem of different standards, regulations and legislation that act as barriers to trade – something that places a particular burden on our small and medium-sized companies.

Chancellor Angela Merkel has put this problem on the agenda of her presidency of the European Council. She has explicitly referred to regulatory impediments to market access in the licensing of drugs, cosmetics and automobiles. Such impediments result not only from differences in statutory standards of safety, but also from compliance with these standards being tested by different methods.

Europe, as indeed the USA, has established close working relations with the international umbrella organizations of standardization, ISO and IEC. Together, the USA and Europe are responsible for managing 70% of all Technical Committees in ISO and thus exert a considerable influence on the development of global trade. Closer cooperation in areas of mutual interest would hence not only be to the immediate advantage of both Europe and the USA, but would in my opinion have a very beneficial effect on world trade generally. Here, we must make progress.

An important difference between the European countries and the USA relates to the implementation of International Standards. In order to eliminate non-tariff barriers to trade, promote competition and thus increase the volume of trade, International Standards must be implemented nationally and conflicting national standards must be withdrawn. In Europe, this is generally the case – and always so when the International Standard is adopted as a European Standard. In the USA, this is not the case. Yet the adoption of International Standards leads to a clear reduction in transaction costs and facilitates market access for the exporting industry. Producers, investors and consumers can thus focus on state-of-the-art technology which is compatible and competitive on both sides of the Atlantic, in particular with a view to the Asian market.

In the energy sector, the changing global climate is placing entirely new demands on the economy. For products that use energy, common measurement and performance standards are vital because they enable the reliable determination of energy efficiency. This not only permits consumers to base their purchase on whether a product is more efficient than another one, but also allows manufacturers to differentiate their products. Standards for energy management in the industrial process will enable industry to measure and manage its energy use and also provide a framework in which such use can be sensibly discussed. Finally, International Standards can help disseminate innovative technologies for alternative and renewable energy sources, for while competing or incompatible standards can close markets, globally accepted standards open them.

I am confident that this conference will take us a good step further down the road leading to this goal of a truly open transatlantic market.

Welcome

by **DR. AREND OETKER**

Managing Partner, Arend Oetker Holding GmbH & Co. KG, Berlin;
Vice-President, BDI – Federation of German Industries, and Chairman,
German Council on Foreign Relations,
Berlin, Germany



Also on behalf of the BDI, I welcome you to the 3rd Transatlantic Market Conference entitled Growth and Security: Energy and Energy Transportation.

Mr. Donohue, thank you for providing this excellent conference venue once again. It seems to have become almost a tradition that we meet at the U.S. Chamber of Commerce in Washington every spring time. And let me tell you: the time for this year's conference is ideal! Just two weeks ago at the EU-U.S. Summit in Washington, President Bush, EC President Barroso and Federal Chancellor Merkel committed themselves to underpin sustainable and »responsible« economic growth by ensuring access to affordable, clean and secure sources of energy. Moreover, they acknowledged that energy security and climate change are closely linked global challenges. Challenges that must be tackled promptly by a sustainable and integrated policy approach. And challenges that need unprecedented cooperation at the regional, national and international levels. To achieve the described goals of the Summit as efficiently and effectively as possible, it is indispensable that the business community on both sides of the Atlantic is strongly involved in this process. In my view, closer technological cooperation is the best way to solve the energy and environment problems we are facing today.

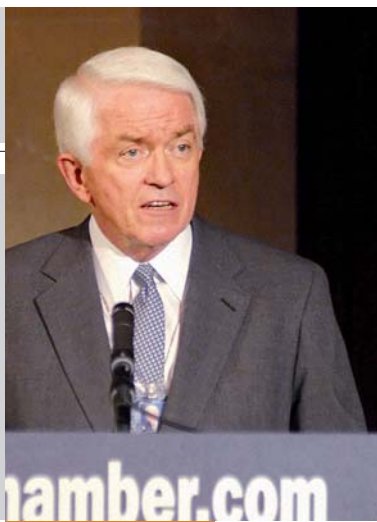
With Germany assuming a leading role on the world market, companies are already taking important steps to increase energy efficiency and to innovate new energy technologies. At the same time, it is essential that politics and business walk hand-in-hand and in the same direction. From my point of view, three aspects are important in this context:

- First: long-term and market-oriented governmental policies are needed that will help industries to increase their efforts and advance innovation.
- In this context, we also need to significantly increase public support for research, development and demonstration to encourage the development of technological solutions. This includes efficient public-private partnerships and the removal of barriers to market-driven innovation.
- And finally, it is necessary to improve the protection of intellectual property. Investments in modern and highly efficient plants and products must be made possible, in particular with respect to direct foreign investments in countries where technology transfer poses a major problem to the investing companies.

I am convinced that the coming two days are an excellent opportunity to address exactly these issues and to discuss the contribution of the transatlantic business community to the most pressing challenge of the 21st century.

Welcome

by **THOMAS J. DONOHUE**
 President and CEO,
 U.S. Chamber of Commerce,
 Washington, D.C., USA



A conference exploring global energy issues couldn't be more timely.

Today, energy presents the United States and Europe – indeed, the whole world – with unprecedented economic and national security challenges. World energy supplies are increasingly vulnerable to the actions of unfriendly governments and non-state actors. There is a regime in Venezuela unfriendly to the West, political unrest in Nigeria, great instability in the Middle East – and Russia has begun using energy as a political tool. Terrorist organizations have set their sights on disrupting the world's energy flows as a matter of policy.

At the same time, there's no doubt that traditional energy supplies will be increasingly strained by dramatic growth in global demand. By the year 2030, the world's energy needs will increase by an estimated 70%. China and India are increasingly voracious consumers of energy, and their appetites will significantly drive world-wide demand.

So the question is: how will we produce the energy we need, protect it from threats, and use it in an environmentally friendly way? Those are the big issues we are here to discuss today.

From the Chamber's perspective, we believe any actions to address these challenges should meet three criteria:

First, they should not harm the economy. Implementing regulations and standards that are so onerous and restrictive they destroy jobs and bring economic growth to a halt are self-defeating.

Second, they must be international in scope. Our economies are tightly intertwined, we all need energy, and pollution travels across borders. It will take the combined know-how of people from all nations to create and implement solutions to our energy problems.

Third, solutions should be technology-based. Technology is key to increasing supply, diversifying it, and making it less harmful to the environment. We must work together not only to improve current technologies and create new ones, but to deploy them, especially in areas where emissions are growing most rapidly – namely, the developing world.

The United States and Europe must be leaders on energy issues.

Our companies and governments must work more closely together on devising new technologies. We must cooperate on energy regulations and standards that promote economic growth, protect the environment, and prevent further regulatory divergence. And we must engage in a continuous, open, and honest dialogue on the many energy issues facing us.

Fortunately, the state of the transatlantic partnership is strong. Just two weeks ago there was a very successful U.S.-EU summit across the street.

The Chamber was delighted that Chancellor Merkel agreed to accept our invitation to speak here immediately after the summit. She has been an exceptional leader on transatlantic issues. One priority she raised with President Bush was energy. It's clearly time for the United States and the EU to work more closely together to tackle this challenge.

The Chamber hopes to lead the way. That's why we created the Institute for Energy, whose mission is to help unite energy consumers and producers in a common cause – to help increase the variety of our energy supply and associated infrastructures, to raise awareness among the public about how critical these issues are, to protect national security, to improve the environment, and to manage as best as possible global climate change.

KEYNOTE

Energy Security of the Transatlantic Market

GENERAL JAMES L. JONES

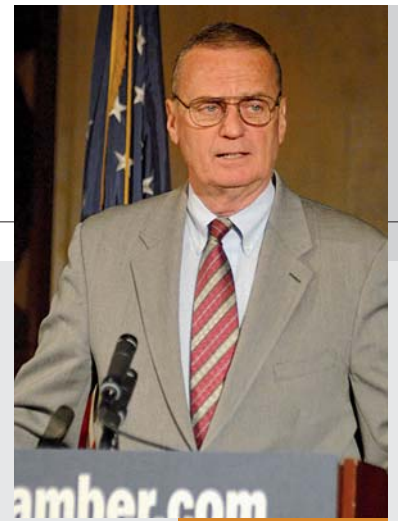
President & CEO, Institute for Energy, U.S. Chamber of Commerce,
Washington, D.C., USA

Excerpt from speech

■ | The security of our collective energy infrastructure and of our energy itself are topics that should be at the forefront of our collective discussions, whether at the Chambers of the world or the Pentagons of the world or the foreign ministries. Energy access and the security of the delivery of energy from point to point is a subject that the EU and NATO should move towards and embrace with open arms.

NATO has to move from being a 20th century reactive to a 21st century proactive organization in order to face the asymmetric challenges of today. To illustrate: over the years in commercial aviation we have globally figured out how to make aviation a generally safe means of transport. NATO is a major participant in this. But if we transfer this concept to the sea space, we lack such agreements. The surface of our oceans – where much of our energy is transported – is not nearly as organized as the air. NATO and the EU should be working together to enhance security in places like the Mediterranean, the Atlantic and the Black Sea. It takes political will and the realization that there are threats out there that seek to disrupt the flow of our commerce and the transport of our energy.

On the Institute for Energy: the goal of the Institute is to have national and international overtones. We are going to educate our public through a grass roots education campaign because of the diversity of thought and the lack of consensus. And we hope to create a bipartisan forum where all aspects of the energy situation – whether supply or demand or the environmental side – feel welcome in a spirit of inclusiveness. We hope to bring coherence in order to push our national policy on the right side of all three components of the energy issue.



»The 21st century announces itself as one in which economic considerations will be a key component of how we define national and international security. You cannot have one without the other. It will be extremely important that our governments understand the realities and make the necessary changes.«

KEYNOTE

Global Energy Markets in Changing: Geopolitical Imponderability, Vulnerabilities, and Political Implications

DR. DANIEL YERGIN

Chairman, Cambridge Energy Research Associates, Cambridge, MA, USA



Summary by the author

■ | In his keynote address to the Dräger Conference, Dr. Daniel Yergin, Chairman of Cambridge Energy Research Associates, made the following points:

The energy challenge today has two parts. The first is meeting the energy needs of a growing world. This represents the success of globalization – rising incomes, poverty reduction, and global integration. The second is the consequence of energy use – particularly carbon and climate change. A remarkable international consensus has developed over the last few years, and the determination to stabilize carbon is very strong. There is a growing sense of urgency. At the same time, there is pervasive concern about the availability of energy supplies.

Answering three key questions helps to put a framework around the issues. These interconnected questions are very important for the transatlantic relationship, and help to

define a common agenda. This underlines the importance of collaboration on these issues and highlights the importance of this conference and the leadership role of the Dräger Foundation on the key transatlantic issues.

What is the future of supply and demand?

Although there is much concern about »peak oil,« the most likely scenario is for world oil supply capacity to increase by 20% over the next ten years. CERA (Cambridge Energy Research Associates) draws both upon its own analysis for the conclusion and the databases of IHS, its parent company. IHS has the largest databases on upstream oil and gas, including 70,000 oil fields and 4.7 million individual oil and natural gas wells.

An increasing share of new capacity will be non-traditional supplies such as offshore, in deep waters and Canadian oil sands, where the scale and complexity are significant. There are many aboveground risks. One is costs. The latest IHS/CERA Upstream Cost Index shows that costs for new oil and gas development are up 64% over the last 30 months. Decision-making and political and geopolitical considerations are also among the major risks. Concerns currently focus on a number of countries and regions.

What are the elements of energy security today?

Energy security is a central element in transatlantic relations. Although there are differences in perspectives there are common principles: diversification, resilience and redundancy, interdependence, high-quality information. Energy security requires a renewed emphasis on energy efficiency and conservation, on which Chancellor Merkel is taking the lead. The development of renewable, alternatives, nuclear, clean coal, and carbon sequestration are all important elements.

KEYNOTE

Energy Efficiency and
Technology:How to Find Economic and
Environmental Solutions in the
Global Energy System

STEVE WESTWELL

Group Vice-President, BP Alternative Energy, London, UK

There are two big revisions to the energy security system to be made. First, rapidly-growing countries, China and India, need to be brought into the energy security system and need to feel more confident about relying on the system and on markets. Secondly, there needs to be much more attention to the security of the entire infrastructure and the supply chain. This is an urgent question. These supply chains are only going to grow longer and more complex. Today, about 40 million barrels of oil a day travel on tankers across water. Within 25 years, that number could be 67 million barrels per day.

What about new technology?

What is very encouraging is what we at CERA call »the great bubbling.« This is the upsurge in spending on energy research and development and innovation all across the energy spectrum by governments, companies, and research institutions. There is also a new entrant – venture capital. Over \$2 billion of investment in clean energy venture capital was made in 2006 – four times what it was two years ago!



»Change does present wonderful opportunities for business to create, innovate, compete, and invest. What we have in front of us is a century in which we are going to recreate the global energy supply chain – which is a massive business opportunity!«

Excerpt from speech

The BP alternative energy businesses:

Solar Power

Manufacturing and marketing

- BP is a leading solar manufacturing and marketing company
- We have manufacturing capacity of 200 megawatt (MW)
- We will add another 100 MW cell capacity in 2007
- Going forward we aim to increase our global market share

Silicon activities

- We have signed a significant supply contract with Hemlock

>>>



BP's new Biofuels business

- Biofuels is an critical and timely step in the future fuels pathway and will help deliver goals towards security of supply and GHG emission reduction
- BP formed a new Biofuels business in June 2006
- Announced plans to invest \$500 M in new Energy Biosciences Institute to provide a pipeline of biofuels technology for the business
- Will partner with science company DuPont to develop advanced biofuels- the first introduction is biobutanol
- BP & DuPont collaborating with British Sugar to convert an ethanol fermentation facility to produce biobutanol
- Initial production targeted in the UK during 2007

BP Biofuels a growing alternative

- >>> ■ Extensive investigation into alternative silicon sources
 - provides an opportunity for significant cost reduction over traditional sources
- Continued development of our advanced Mono2 technology
 - offers monocrystalline efficiencies with multi-crystalline cost and processing advantages

Hydrogen Power

- BP is planning the world's first two industrial scale hydrogen power projects with carbon capture and sequestration – at Peterhead in Scotland and at Carson in Southern California
- We were recently awarded a \$90 million incentive tax credit by the U.S. Federal Government for our Carson project
- We are close to finalizing additional partnerships and joint ventures that will assist in rapidly advancing this technology
- We plan to show that this wide range of technologies will work at scale and will use a variety of fuels to produce hydrogen and diverse types of reservoirs for sequestration
- We plan on announcing additional projects in 2007

Wind Power

- We will build 550 MW in 2007 with projects in several U.S. states
- We have a 40 MW project under construction in Maharashtra, India with our partner Suzlon Energy
- We have secured options for 4,250 MW of turbines over the following five years through a strategic deal with Clipper Wind Power
- We have acquired a 15 gigawatt (GW) development portfolio in the U.S.

- We are looking to develop further projects in India and China
- In Europe our focus will be on offshore wind

Gas-fired Power

- We participate in 12 GW gas-fired power plants
- We have successfully developed five new power plants in the past five years in the U.S., UK, Vietnam, South Korea and Spain
- We broke ground at our 250 MW Texas City Steam Turbine project in 4Q 06 that will take our Texas City facility to 1,000 MW when complete
- We will continue to look for high-value opportunities to monetize our equity gas positions and build co-generation facilities at existing BP facilities

PANEL DISCUSSION

Energy and Energy Transportation
Security:

Fields for Transatlantic Cooperation & Regulation

**Moderator:****WILLIAM L. KOVACS**

Vice-President,
Environment, Technology &
Regulatory Affairs,
U.S. Chamber of Commerce,
Washington, D.C., USA

■ Introduction

by **DENNIS B.
FITZGIBBONS**

Chief of Staff, Energy and
Commerce Committee,
House of Representatives,
Washington, D.C., USA

**Excerpts from speech**

■ | The solutions to the questions of energy supply and climate change are largely identical with the exception of coal. The solutions are 1. reduce consumption, 2. develop alternatives. A word on terminology: I prefer the term energy security to energy independence. Because energy independence is largely unobtainable, and many in international relations have observed that interdependence is a good thing with respect to geopolitical challenges.

The politics of energy both in Europe and the U.S. are very much regional politics. In the U.S. it depends on what you have: in West Virginia it is coal, in the Pacific Northwest hydroelectric power, in Texas and Louisiana oil and gas. There are even regional differences within sectors. In the automobile sector you have different outlooks from companies in countries like France and Germany which produce vehicles of different sizes. The >>>

»In legislation on climate change there will have to be an international component. I say this for political, economic and environmental reasons. You cannot address the problem of greenhouse gas emissions without addressing the international dimension. The U.S. labor force is concerned if climate legislation is not done properly, it could produce a massive outsourcing of jobs to countries that are not carbon constraint. There will have to be incentives or requirements for other countries so the U.S. is not put at disadvantage.«

Dennis B. Fitzgibbons

>>> differences in politics tend to produce very different regulatory schemes.

Two major pieces of legislation will move in this session in the House of Representatives.

1. We have begun drafting legislation on the subject of energy which will address Efficiency Standards for Appliances, Building Efficiency, Lighting Efficiency, Industrial Energy, Energy Efficiency of Public Institutions and Energy Savings Performance Contracting.
2. In the fall Congress will work on broader Climate Change Legislation. There will be an effort to craft a economy-wide cap-and-trade system. We expect a vigorous debate about coal and similarly about nuclear power.

If we are successful on climate legislation this fall it will not be the end but a continuous effort. A cap-and-trade system has to be constantly monitored and refined.

PANEL DISCUSSION

■ Sustainable Energy Systems for Climate Protection: Combining and Scaling up Energy Efficiency and Renewables Is the Key¹

PROF. DR. PETER HENNICKE

President of the Wuppertal Institute for Climate, Environment and Energy, Wuppertal, Germany

Summary by the author

■ | There is no doubt that present worldwide energy trends are not sustainable considering their impact on climate change and on depletion of natural resources. In particular the current level of per capita energy consumption in the North and the underlying patterns of production and consumption are not transferable to rapidly growing economies and highly populated countries like China or India. There is evidence that within a short time period, maybe within one to two decades, a fundamental choice will have to be made: should energy systems continue to follow the historical trends of risky and unsustainable energy use patterns? Then, acceleration and mutual reinforcement of most of the risks inherent to current energy systems (e.g., climate change, resource struggles for oil and gas, nuclear conflicts and accidents) would seem to be inevitable. Or should innovative policies and measures (P&M) encourage private investment decisions and societal lifestyle changes towards sustainable development and climate protection, giving top priority to energy efficiency and to a broad mix of renewable energies? It has been estimated that this sustainable path to climate change mitigation and resource protection is much more beneficial in economic terms when compared to the possible economic burdens of »business as usual.«² Many technological options are feasible for climate and resource protection, and societal goals can be achieved in a cost-effective way. The key problem is »scaling up what we already know how to do«³ to mitigate climate change and reduce the costs of adaptation. Therefore, implementation research, establishment of market introduction targets and action plans, and implementation of networks and agencies for knowledge management are needed to foster the market

¹ See the author's articles: Hennicke, 2004; Fishedick and Hennicke, 2004; Hennicke and Fishedick, 2006; Hennicke, Borbonus and Woerlen, 2007.

² Compare Stern, 2007.

³ Compare Pacala and Socolow, 2004.

diffusion, know-how and capital transfer of advanced energy efficiency technologies and renewables. Sustainable energy paths should be based on the following principles:

- Access to energy services and fair shares for all, including fair partnerships with developing countries
- Effective conservation of resources and protection of environment, climate and health
- Social acceptability now and in accordance with the needs of future generations
- Minimized risks, fault tolerance and contribution to mitigate international conflicts
- Cost-effectiveness, including internalization of external costs

Based on the principle of common, but differentiated responsibilities, industrialized countries (IC) should take the lead in climate mitigation: to reduce global CO₂ emissions by about 50% by 2050 according to the UNFCCC, an even more ambitious reduction target of 80% for IC seems to be necessary in the same time frame. These targets are in line with a »tolerable window« of climate change: the rate of temperature change should not be more than 0,2 °C/decade; the mean global temperature increase should not be more than 2 °C and CO₂ concentration should stay below 450 ppm.⁴

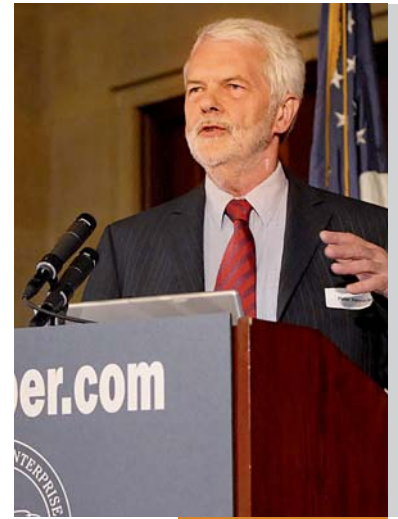
Sustainable energy scenarios (e.g., global, EU, Germany)⁵ have demonstrated how risk-minimizing strategies could be based on a robust technological corridor by combining energy efficiency with the broad mix of renewables. Furthermore, these studies show how sustainable energy systems can be financed and also that economic growth can be decoupled from absolute levels of non-renewable energy consumption by stepping up energy productivity.

Energy scenarios differ greatly in terms of their assumptions regarding economic and population growth, their results regarding technology pathways and CO₂ emissions, but also in their methodological approaches. One group, the so-called »back-casting scenarios,« is particularly helpful for decision-makers. Their approach is to identify a sustainable and affordable future and then find investment and technology paths that lead to that future. Back-casting scenarios allow identifying and changing current unsustainable trends today while basing long-term decisions on precautionary and safety principles.

A typical hypothesis of this approach is a **global convergence strategy**: (1) Cut per capita energy consumption in industrialized countries by at least half through more efficient use of energy without decreasing living standards.

(2) Decouple the increase of living standards everywhere as much as possible from the use of non-renewable and risky energy. (3) Encourage technological and social leapfrogging⁶ as much as possible: in poverty situations, the absolute energy use is often below the amount necessary for a minimum living standard. Development and poverty abatement, for example, in the form of achieving the MDGs, will come along with an increase in absolute and probably also per capita energy consumption in developing countries. It is possible and necessary to keep this increase in per capita energy consumption as low as possible from the very outset by deploying state-of-the-art energy conversion technologies and efficient energy use systems, so that standards of living can grow rapidly without producing the equal amount of emissions as in the business as usual (BAU) scenario.⁷

Decoupling, leapfrogging and socio-technical innovations constitute the basic rationale behind the concept of the so-called »2000 Watt per Capita Society« in OECD countries. 2000 W/cap (= 65 GJ/cap) corresponds to one third of today's European per capita energy. Enabling a GDP/cap growth of two thirds up to 2050, the »2000 Watt per Capita Society« implies a factor 4 to 5 increase of energy and material efficiency. Swiss research institutes have been working on this concept for many years, demonstrating the technical feasibility of this challenging vision. As the world average energy consumption in the last two decades has been 70 GJ/cap, one of the Swiss report's hypotheses is that 65–70 GJ/cap could even be a future convergence value for a sustainable world energy system. This convergence value implies that the reduction of per capita energy consumption in developed countries should be ambitious (reduction to one third of the current level) so that the necessary increase of per capita energy consumption in the developing world would not exceed the carrying capacity of the world's ecosystems. >>>



⁴ WBGU, 2003.

⁵ Compare, for instance, WBGU, 2003, Greenpeace and EREC (ed.), 2007, Wuppertal Institute and VATT, 2006, Nitsch, 2007.

⁶ Simply defined »technological leapfrogging« means to jump to the most advanced technologies from the very beginning of development; examples are »umps« to renewables (instead of fossil or nuclear fuels), to cell phones (instead of grid-dependent telephones), to LED + PV Solar + rechargeable batteries (instead of traditional light bulbs and grid-connected electricity).

⁷ See Jochem, 2004.



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>>> Thus, an ambitious increase in energy and material productivity, a change of innovation systems, the exploitation of long reinvestment cycles and the gradual structural change to more sustainable patterns of consumption and production are important preconditions for establishing a »2000 Watt per Capita World Society.«⁸

It should be added that by reducing the gigantic losses in existing energy systems⁹ and by raising the share of renewables (as has been decided in Germany) the vision of »a sustainable energy society« could even today be taken as the guiding principle on which to base concrete implementation steps. For example, the new »Lead Scenario« of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety demonstrates how Germany can contribute to a »2000 Watt per Capita Society«, reducing CO₂ by 80% up to 2050, phasing out nuclear power – according to the existing contract between the government and the operators of nuclear power plants – and integrating energy efficiency and renewables so that only marginal extra-societal costs will occur. A concrete step in this direction is the recent decision of the German Government¹⁰ on a targeted »Eight Measures Action Plan« to reduce greenhouse gas emissions by 40% by 2020 compared with 1990 (i.e., 270 million tons less than in 2006).

⁸ See Jochem, 2004.

⁹ On average only about 30% useful energy is derived from 100% primary energy inputs in the worldwide energy system and in most national energy systems; see Jochem, 2004.

¹⁰ See Gabriel, 2007

PANEL DISCUSSION

■ Geopolitical Dimensions of Energy Security

DR. FLYNT LEVERETT

Director, Geopolitics of Energy Initiative,
New America Foundation, Washington, D.C., USA

Excerpts from speech

■ | The political and strategic aspects of energy trade have gone up over the last years. This is due to two structural changes in global energy markets: 1. the emergence of new significant demand centers, particularly in Asia, and 2. on the supply side, the progressive concentration of hydrocarbon reserves in a smaller number of countries. This is especially true for oil reserves.

On the demand side: Americans and Europeans have to take energy security more seriously as a foreign policy issue. It is important to bring China and India into the system of the International Energy Agency. To bring them into the system does not only mean giving them membership – it means reinventing the IEA. Under the current rules, a new member country would get weighted voting power based on its oil consumption of 1974! It will take willingness to share decision-making power. This is a worthy transatlantic project.

On the supply side: for at least the next quarter of a century the U.S. and European economies will depend on imported hydrocarbons. That means dealing with producer countries so they will have the incentive to make investments in increasing supplies. I would argue that the biggest source of political risk in energy supply from the Middle East and the former Soviet Union is neither Islamic extremism nor local authoritarianism; rather, the biggest risk is American foreign policy. For more than a decade the declared goal in U.S. policy towards Iran has been to keep as much of its oil and gas in the ground as possible. We cannot put demands on Russia regarding their internal behavior, and pursue NATO enlargement, and not think there will be any consequences for the availability and security of energy supplies.

If you are an energy consumer you are interested in a long-term supply, but if you are an energy producer you are interested in long-term demand. This is certainly the attitude of decision-makers in Russia and Saudi-Arabia. The U.S. and Europe should coordinate and reach a common agenda in their foreign policy.



»There are very powerful and compelling reasons to talk about energy alternatives and reducing demand – but for at least the next quarter of a century dependence on imported hydrocarbons is going to be a strategic reality for the U.S. and Europe, and our foreign policy needs to take account of that.«

PANEL DISCUSSION

■ Security of Supply Is the Challenge – Partnership Is the Answer

DR. RAINER SEELE

Chairman of the Board, WINGAS GmbH;
Member of the Board of Directors,
Wintershall Holding AG, Kassel, Germany



Summary by the author

■ | The main challenges of energy demand in the future will need global solutions. Producing countries are gaining more and more power and control; their position is strengthened by growing demand, their high levels of financial liquidity, and the producer's increasing influence and direct advance into the consumer markets: a result of the liberalization and regulation of our markets, which should actually encourage competition and secure supplies in the long term. But we have to be critical here: should we open up our energy economy to the producers when the producing countries are, at the same time, trying to take exclusive control of the oil and gas reserves?

At the same time, energy economy issues are of national importance for us as consumers. We consumers must work together to find answers to our increased dependency on the producing countries. Germany, as the most important member of the European Union in terms of its economy, and the U.S. both have a special role to play in this respect. We have a similar situation on both continents. Demand for energy will rise, while domestic production will decrease. Consequently, our import requirements, especially for gas, will increase more and more.

What is the situation with regard to the natural gas supply in Europe?

The natural gas market is growing by 1 to 2% each year. However, import needs are growing at a much higher rate, while domestic production – especially in the North Sea – is declining steadily. In addition to North Sea sources, deposits in North Africa and Russia will largely satisfy Europe's demand. The proportion of gas deliveries from Russia will rise from the current 25% to more than 30%. This is not particularly surprising given that the world's biggest gas reserves just happen to be in Russia and – the good news – Gazprom has accepted the fact that Europe needs more gas and has adjusted its operations accordingly.

To take account of rising demand, gas production will increase by 16% to more than 700 billion cubic meters and exports to Europe will grow by almost 40% to 200 billion cubic meters. Behind these figures are enormous investment projects aimed at developing new gas sources and expanding the infrastructure. Russia cannot do this on its own. This is why I believe that Russia will remain a reliable supplier of natural gas. These investment projects hold our energy partnership together. Our close operative cooperation with Gazprom has absolutely convinced me that security of supply is guaranteed. I can heartily recommend Russia as a secure, reliable gas supplier for the U.S. markets within the course of import source diversification. This is an opportunity for America – especially as several natural gas reserves in Russia are suitable for LNG, which is a prerequisite for deliveries to the U.S.



But let us first talk about the key elements. The first key element for a sustainable strategy to secure supplies is that we need more gas! We need long-term import contracts with which we can secure the natural gas sources at the respective country borders.

The second key element is direct participation in gas production in the producing countries. Here, we have a great deal to offer: primarily technical expertise, environmental technology and sustainable development. Our companies provide and ensure added value – and they are the link to the consumer markets.

The third key element of a sustainable strategy is diversification in terms of import infrastructure. Several pipeline and LNG projects are in the planning and implementation phases. The Nord Stream Project is a direct pipeline project between Germany and Russia. It pursues two goals:

- Diversifying the export routes for Russian natural gas
- Building additional capacities for growing demand in Europe

The two offshore pipelines have a capacity of 55 billion cubic meters and are due to come on-stream in 2010 and 2012. The connection lines, OPAL and NEL, have to be completed by the same time. On the whole, WINGAS will install 1,000 kilometers of high-pressure pipeline in Germany to establish the connection to the European gas pipeline system. The complexity and dimension of the Nord Stream project, with an investment volume of more than 10 billion euros, is based on partnership. In this case with three strong partners: Gazprom, WINGAS and E.ON Ruhrgas.

In terms of security of supply, the EU Commission is focusing very much on the fourth key element of a sustainable strategy – gas storage facilities. European storage capacities are to be increased from the current 70 to 100 billion cubic meters.

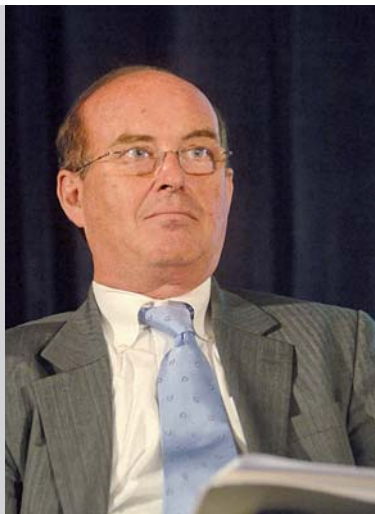
Naturally, the key to security of supply also includes diversification in terms of storage facilities, transportation routes, and diversification of energy sources. In our search for new energy sources we should especially direct our attention to one particular source: the avoidance of superfluous energy consumption!

WORKING GROUP 1

Transatlantic Cooperation in Renewables: Solar, Wind, Biomass, Hydrogen

Refer to www.din.de/sce/tmc_en for the presentations held in the Working Groups.

PARALLEL WORKING GROUPS



Chair:

MICHAEL T. ECKHART
President, American Council on Renewable Energy (ACORE), Washington, D.C., USA



Speakers:

VICTOR ABATE, Vice-President, Renewables, GE Energy, Atlanta, GA, USA

PROF. DR. N. EL BASSAM, Director, International Research Center for Renewable Energy (IFEED), Lehrte, Germany

CHRISTOPH HUSS, Senior Vice-President Science and Traffic Policy, BMW AG, Munich, Germany

BRENDAN KENNEDY, General Manager – Defense and Technical Components, MAN Ferrostaal, Inc., New York, NY, USA

DR. LUDOLF PLASS, Senior Vice-President Sales Technology, Lurgi AG, Frankfurt/Main, Germany

WORKING GROUP 2

Energy Efficiency, Supply Security, and New Technologies – Challenges & Solutions

Refer to www.din.de/sce/tmc_en for the presentations held in the Working Groups.

**Chair:****STEVE WILLIAMS**

Director for Europe and Eurasia, Lockheed Martin Corporate International Business Development; President, German American Business Council (GABC), Arlington, VA, USA

**Speakers:**

PROF. DR. ALEXANDER BRADSHAW, Scientific Director, Max Planck Institute for Plasma Physics, Garching, Germany

WILFRIED BREUER, Vice-President Power Transmission Solutions, Power Transmission and Distribution Group, Siemens AG, Erlangen, Germany

KEITH N. COLE, Director, Legislative & Regulatory Affairs, General Motors, Washington, D.C., USA

THOMAS KROPP, Senior Vice-President and Head of Corporate International Relations & Government Affairs, Deutsche Lufthansa AG, Berlin, Germany

PROF. DR. WOLFGANG WINKLER, Director, Fuel Cell Lab, Hamburg University of Applied Sciences, Hamburg, Germany

I CLOSING SPEECHES

PLENARY



Moderator:

FRED KEMPE

President, The Atlantic
Council of the United States,
Washington, D.C., USA

CLOSING SPEECHES

The EU's Integrated Climate and Energy Policy

HELEN DONOGHUEPrincipal Administrator, Directorate-General for Energy and Transport,
European Commission, Brussels, Belgium**Summary by the author**

■ Ms Donoghue set out the main lines of the March 2007 agreement by the European Council (heads of state or government of all 27 member states and the President of the European Commission) on an **integrated climate and energy strategy for Europe**. It is geared to the **strategic objective** of limiting the global average temperature increase to not more than 2 °C above pre-industrial levels, a threshold above which risks of catastrophic and irreversible damage seem to increase dramatically. Timing of action to reduce greenhouse gas emissions is crucial. The European Union holds that **developed countries should take the lead**, collectively reducing their emissions to 30% below 1990 levels by 2020, with a view to the necessary global reductions to 60 to 80% below 1990 levels by 2050. In a concrete demonstration of Europe's determination to achieve results, the new policy includes a **firm EU commitment** to reduce its emissions, independent of any global climate agreement, to at least 20% below 1990 levels by 2020. As part of a global, comprehensive agreement, the EU will take 30% as its 2020 objective.

Long-term thinking on **energy policy** is essential in bringing about a satisfactory transition to an energy-efficient, low-carbon economy in Europe and worldwide. In 2005, the European Council decided that it must articulate a **long-term energy policy for Europe** and that Europe would use its collective weight to make its voice heard on the rapidly-evolving global energy scene. The March decision includes an **Energy Action Plan**, with ambitious, quantified targets, notably a 2020 target of 20% for the share of renewable energy in Europe's primary energy consumption, with legally-binding national contributions, a 20% reduction in final energy consumption compared to business as a usual projections. The EU's **Emissions Trading Scheme** will be important and the medium-term emissions



reductions commitments now agreed, along with the clear energy policy targets, should lay the foundation for solidly-based carbon prices and credible **signals to investors**.

Effective **partnerships** and frameworks for cooperation must be established to tackle climate and energy security challenges, both regional and global. Ms Donoghue outlined the EU's approach to energy relations, based on **mutual dependence**, notably with its neighbours. In the **transatlantic** context, the Statement on Energy Security, Efficiency and Climate Change from the 2007 EU-U.S. Summit reflects the range and depth of cooperation already established and needed in the future.

CLOSING SPEECHES

Energy Security Strategies in a Changing Global Environment

MATTHIAS VON RANDOW

Director General, Strategic Planning, International Relations, Federal Ministry of Transport, Building and Urban Affairs, Berlin, Germany

**Summary by the author**

■ | Transportation in Germany depends for more than 90% on fossil energy sources, mainly oil. How can we secure the energy supply for transportation in the future? And which are the alternative fuels that might replace oil? In order to pursue this core question and utilize all available expert knowledge, the Minister of Transport initiated the so-called »Transport Energy Strategy,« a Government platform involving all major German automotive manufacturers and the mineral oil companies active in Germany, and drawing on scientific expertise whenever necessary.

Our platform proved to be an excellent instrument for reaching sound and comprehensive conclusions in the very complex area of fuels and propulsion technologies. The following three criteria were the basis of our evaluation process:

1. What is the contribution to CO₂ reduction?
2. How is the economic efficiency?
3. Can the new fuel option be produced in the quantities necessary to contribute considerably to a sustainable fuel structure?

On the strength of this we developed our »National Fuel Strategy« in 2004. Elaborated and adopted by both industry and the Federal Government, it rests on two pillars:

- Improvement of energy efficiency
- Widening of the energy basis



1. Energy efficiency

For us in Germany, enhancing energy efficiency has become the key element of energy and climate policy. In this field we see considerable scope for savings. We think it feasible to increase the energy efficiency of transportation by at least 20% by 2020 compared to 2005. We know it is an ambitious goal. And it requires enormous innovations.

The question is: will innovations develop only through business activity or should governments provide incentives? In Germany we think that governments have to take an active role. Let me name a few examples:

- We are currently working on relating the vehicle tax more closely to CO₂ emission.
- Moreover we are developing a »climate passport« for cars. This labeling scheme is to serve consumers as a guide for buying an energy-efficient vehicle.
- We are also working within the European Union to implement binding CO₂ margins for cars.

2. Fuels and drivetrains

We want to give incentives for technological innovations. We use fiscal and regulatory instruments to further increase the efficiency of gasoline or diesel engines, but also to open up the market for new fuels. We have committed fuel suppliers to offer an increasing share of their fuel sales in the form of biofuels. Suppliers meet this obligation mainly by admixtures. These fuels are taxed the same way as conventional fuels. As a result, the obligatory quota will increase to 8% of overall fuel sales by 2015.

This takes us to the next challenge: how to achieve a bigger share of biofuel admixtures than is technically feasible – at least currently. This is why we consider first generation biofuels to be only a solution for a transitional period. In the medium term, second generation fuels from a much wider range of suitable raw materials will become increasingly important. In the long term we see potential for hydrogen. And with an efficiency rate of far above 50% the fuel cell beats all alternatives in this respect.

We know there is a long way to go. A challenging question is where the energy used for the generation of hydrogen is to come from. So we can say: the promotion of these emerging technologies requires perseverance, thorough planning and a sound financial basis. This is why we have launched an extensive program to support the development of hydrogen and fuel cell technology. This one billion euro program over the next ten years is jointly financed by industry and Government.

CLOSING SPEECHES

Remarks

JOHN F. MIZROCH

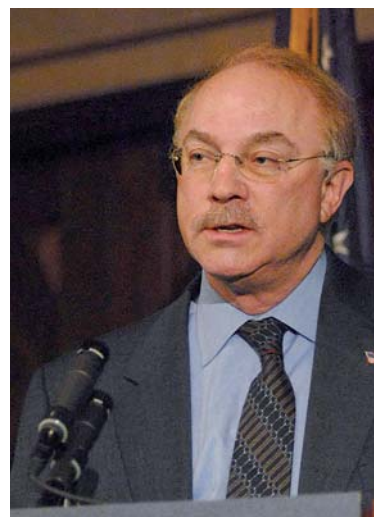
Principal Deputy Assistant Secretary,
Office of Energy Efficiency & Renewable Energy,
Department of Energy,
Washington, D.C., USA

Summary by the author

■ | U.S. Department of Energy Principal Deputy Assistant Secretary John Mizroch addressed the 3rd Annual Transatlantic Conference on May 14. His remarks highlighted the Department of Energy's work on renewable energy and energy efficiency, including biofuels, solar and wind energy, as well as technologies to improve the efficiency of residential and commercial buildings.

As Mr. Mizroch noted, President Bush has taken aggressive action on biofuels: first, with the Advanced Energy Initiative, challenging Americans to change the way they power their homes, offices and vehicles, and increasing clean energy funding by 22%; and second, with the more recent Twenty in Ten plan to displace 20% of U.S. gasoline usage by 2017. Mr. Mizroch also reviewed the Department of Energy's recent announcements supporting the development of six commercial scale biorefineries for up to US \$385 million with an additional US \$200 million for up to ten pilot biorefinery projects. The Department of Energy will also announce selections for three bioenergy research centers totaling US \$375 million later this year. A large number of U.S. government agencies also now participate in the Biomass Research and Development Board, which coordinates government-wide biofuels efforts.

The U.S. Department of Energy is continuing its work on other renewable energies and efficiency technologies. The Department recently announced up to \$168 million for the Solar America Initiative, which seeks to drive down the cost of photovoltaic solar power to make it cost-competitive with other forms of electricity by 2015 through partnerships with private companies, universities, and non-governmental organizations. Mr. Mizroch also pointed out the Department of Energy's Net-Zero Energy Homes project, which seeks to develop homes that will produce as much



energy as they consume by 2020. This will be achieved through distributed generation of renewable electricity such as solar energy and higher-efficiency building materials.

Mr. Mizroch concluded by emphasizing the need for continued transatlantic cooperation. Energy poses unique environmental and security issues for many nations. International cooperation on energy will help to address these issues and secure our energy future.



MAY 14, 2007
**RECEPTION
& DINNER**

at the Residence of the German Ambassador
to the United States of America



Prof. Dr. Dieter Feddersen, Dr. Jackson Janes, Dr. Klaus Scharioth,
Claudia Dräger, Stefan Dräger



Prof. Dr. Peter Hennicke, Steve Williams



Rüdiger Marquardt, Christina Hornstein, S. Joe Bhatia



Prof. Dr. Dr. Rudolf Dolzer, Wolfgang Schaefer



Christoph Huß, Brendan Kennedy



Prof. Dr. Kenneth W. Dam, Dr. Klaus Scharioth



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Prof. Dr. Georgios Tsatsaronis, Dr. Constanze Messal



Hansgeorg Hauser, Dr. Klaus Scharioth, Petra Pissulla, Katja Gloger, Henning von Gersdorff



Prof. Dr. Ulrich Blum



Hansgeorg Hauser, Prof. Dr. Nasir El Bassam



Dr. Torsten Bahke



Sibylle Gabler, Sigrid Zirbel,
Adelheid Feilcke-Tiemann



Stefan Dräger, Robert C. Cresanti, Dr. Klaus Scharioth

DINNER REMARKS

International Standards: An International Opportunity for Global Resource Economics

PROF. DR. ULRICH BLUM

President, Halle Institute for Economic Research,
Halle, Germany



Summary by the author

■ | Once the policy discussions on the resource, energy and environmental problems of the world economy are concluded, the daunting challenge for all of us will be: how can we effectively implement these major policy decisions? Our argument is that standardization is a fundamental tool as it creates accepted reference points and benchmarks on the technological level, and level playing fields with respect to competition. Standardization has proven this over thousands of years. The »toolbox« of industry standards, consortia standards and especially formal standards offers the necessary instruments. Furthermore, this framework extends into the value chain of knowledge production, in which patents are important input to standards.

Given the present international agenda, the energy economy and the environmental economy are in need of an accepted level playing field. The creation of wealth, the generation of equal opportunities on the global level and

conflict management are major reasons. Through its ability to integrate technological, economic and political requirements, standardization, especially formal standardization, provides such an integrative potential.

While formal standards are public, their generation creates a club that allows the gathering of strategic knowledge in an antitrust-free environment. However, the time requirements of industry, and its ability to select types of standards and the region from where to originate standardization, put national standards bodies (NSBs) and, to a lesser extent, their international organizations under pressure. At the same time, only formal standards offer the type of reference needed, especially if an accepted allocation of environmental scarcities is to be enforced on a worldwide level. European standardization may assume the role of best reference: Whenever possible, Europe standardizes at ISO and IEC, and the results trickle down to CEN, CENELEC and the NSBs respectively. This is what the Vienna and Dresden Agreements imply. All conflicting national standards are then withdrawn. This generates a level playing field nationally, Europe-wide and throughout the world. Furthermore, Europe uses European standards for deregulation in the so-called »New Approach,« by laying down requirements the details of which are then provided by the private sector (e.g., the testing of conformity with respect to pollution standards). This offers huge economic potential to SMEs.

In resource economics, where environmental factors, efficiency issues, antitrust and regulation questions are at stake, standardization may provide an important instrument to organize this global field by laying down environmental rules, by establishing required efficiency levels for the use of resources, by generating a transparent regulatory environment, and by setting rules on data requirements for monitoring markets.



MAY 15, 2007

BRIEFING of European participants by a Member of the United States House of Representatives on U.S. energy and energy transportation issues

»The challenge before the subcommittee is to write a mandatory greenhouse gas control measure with economy-wide application that does not dislocate any economic sector.«

Congressman Rick Boucher, Chairman of the Energy and Air Quality Subcommittee, informed the German delegation on plans for the greenhouse gas control program:

Here is a broad outline of the program:

- _ The program will be mandatory rather than incentive.
- _ It will be economy-wide, which means that mobile sources will be included, unlike in the EU.
- _ No sector will be advantaged or disadvantaged.
- _ All measures taken will be bipartisan.
- _ There will not be an endorsement of cap-and-trade systems

■ **On the Kyoto Protocol:** It was not ratified by the U.S. because it was neither balanced nor in the interest of the U.S., and did not include obligations for developing countries. The U.S. might be able to achieve the same goals by the use of trade laws: an item which comes from a country without a greenhouse gas control program would have to get an admission credit. This should entice programs in developing countries.

■ **On coal:** Because coal is the biggest natural resource of the U.S., Boucher introduced federal legislation to promote the use of coal-to-liquids, a technology which enables the production of transportation fuels from coal.

LUNCHEON SPEECH

Thinking Laterally About Energy Security Policies and Processes. The Transatlantic Test

DR. JACKSON JANES

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■ | A key to understanding the challenge of energy and energy security in the 21st century will be found in unlocking the equation between the demands of an increasingly demanding global economy, the need for maintaining a secure energy supply chain able to sustain it, and the ability to draw the consequences for the environment. While there is no doubt that the demand for more energy will escalate exponentially, the question is how to avoid the eruption of fissures among those seeking both stability and security of supplies. Because there is no major geopolitical issue which does not involve energy in some way, the challenge is to get a shared sense of ownership in finding a solution to the problems which lie ahead. That shared sense of ownership lies in achieving a sense of the word »we« in responding to these challenges. The first step in responding to such dangers is to examine what the supplies are and can be in whatever form. The challenge is not that we cannot provide enough supplies for the demand, now or in the future. The challenge is to provide supplies which offer incentives to have a diversi-

fied range of supplies which cut back on hydrocarbons in the next decades. This is about choices we make now for the future.

While we may argue about the means of reaching that goal, there is not a deficit of knowledge about what to do. Today, the debate is more about the sequence of solutions than over whether we need optional solutions to the course we are on. That also involves defining the »we.«

The great clash between the United States and Europe over the Kyoto Protocol was on one level about the setting of targets to reduce emissions. The politicians of Washington, D.C., on both sides of the political aisle, rejected the Protocol, claiming that it would stunt economic growth and that it did not engage the two major countries in the world, China and India, in the effort, without providing an alternate plan to do so. The European counterargument had been that the major industrial leaders of the world needed to set down a benchmark for others to follow. Skepticism on both sides of the Atlantic remains, and the steps to be taken after 2012 when the first phase of the Kyoto Protocol concludes are not yet clear.

But it is the »we« that gets in the way of reaching a consensus. If industrial countries tell the Chinese and the Indians that they cannot go down the same economic path which was taken by Europe and the United States in developing their economies because it will endanger the global climate, the predictable response is: Who are you to tell us what to do when you have been in the lead of causing the problem to begin with? Who are you to ask us to make the sacrifices which you yourselves never considered?

Even within the United States, we cannot achieve a consensus on how to put a national policy into effect because there are conflicting regional interests. The hills of West Virginia and those who work in the coal mines compose a different set of economic and energy interests than those who work in the southwest of the U.S. where coal is not the only source of energy. And of course that goes for the politicians who represent them.

It is interesting to note that in the U.S., the initiatives being taken at the level of the states and communities to deal with environmental regulatory policies are more dynamic as corporate and sub-national governmental interests seek common ground in dealing with their own vested interests of securing both economic growth and energy supplies. This is in the absence of a national policy at the Environmental Protection Agency which was recently reprimanded by the Supreme Court for not exercising its responsibilities to set out guidelines for environmental goals.

Yet the »we« is very evident when one looks at the projections of environmental impact studies if steps are not taken to move away from hydrocarbons over the next few decades. The evidence is in. We know what to do and what we can do now. We know that we need to decouple the issue of economic growth from continuing increases in carbon production. And we have a world debate which is far more sensitive to the issues than a few decades ago.

But the problem in arriving at a consensus on how to implement solutions is the sheer complexity and all pervasiveness of energy concerns in our lives. International solutions are dependent on the force of strong national governments and their ability to cooperate with each other. As in all political tugs of war, there is discussion about choices and trade-offs and who is willing to make them. In a larger sense, this is a trade-off between the present and the future. But without a clear sense of the need for change connected to sacrifices, what they need to be, and who should make them, the necessary political »we« will not be easy to mobilize.

After World War II, the great leaders of Europe got together and decided they would create a Europe which would never again let itself descend into the fratricide it had just emerged from. One of them, Jean Monnet, confronted with the enormity of the challenge of creating a European »we,« responded to a reporter's question as to how he would find a solution to that problem. His answer: »If one cannot find a solution, then one expands the framework of the search.« Just as that was needed to generate the EU of today, so will an expansion of the framework in which we look at energy in the 21st century be a much larger and comprehensive one that we know today. Perhaps we can be as successful as the founders of Europe were 50 years ago.

COMMENT

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■ | As state and local governments in the U.S. endeavor to respond to demanding and complex environmental challenges such as non-point source pollution, contaminated industrial lands, energy efficient buildings, or water infrastructure, environmental policies and best practices from countries such as Germany are serving as important lessons for the development of new policies and innovative approaches.



The reasons are clear: countries such as Germany have responded to similar environmental challenges by developing and implementing their own innovative solutions to these problems. The policies of cities and states such as Stuttgart, Berlin, and Bavaria have helped promote low-impact development to manage stormwater, constructed wetlands to treat wastewater and »green« buildings, and developed renewable energy to address air pollution and industrial ecology to support pollution prevention and brownfields revitalization.

As they plan new initiatives, projects and policies, and seek new and different approaches to existing challenges, U.S. states such as Wisconsin, Maryland, Pennsylvania and regions such as Northern Virginia are looking across the Atlantic to observe and apply these experiences and lessons from Germany. As expected, state-to-state and peer-to-peer environmental partnerships are growing. Through these fora for transferring lessons, U.S. states and cities are developing new, concrete ideas that produce projects and policies with domestic environmental and economic benefits.

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