

THE BROOKINGS INSTITUTION

SHIFTING GEARS IN THE GLOBAL DIALOGUE ON ENERGY POLICY

Washington, D.C.

Friday, February 13, 2009

PARTICIPANTS:

Introduction and Moderator:

[CHARLES K. EBINGER](#)
Director, Energy Security Initiative

Featured Speaker:

NOBUO TANAKA
Executive Director, International Energy Agency

* * * * *

PROCEEDINGS

MR. EBINGER: (In progress) -- full program on what's happening in the international energy market today. Mr. Tanaka took over the Directorship of the IEA in September 2007. Prior to that, he had been Director of Science, Technology and Industry at the OECD in Paris. Mr. Tanaka began his career in 1973 in the Ministry of Economy, Trade and Industry, otherwise known as METI, in Tokyo. He has extensive national government and international experience within METI, the Embassy of Japan in Washington, and at the OECD in Paris. He first joined the OECD in 1989 as Deputy Director of the Directorate for Science, Technology and Industry and was promoted to the directorship in 1992. In 1995, he returned to METI and served in a number of high ranking positions -- the most recent being Director General of the Multilateral Trade System Department, Trade Policy Bureau. In this role, he led many trade negotiations for the World Trade Organization.

In the energy field, Mr. Tanaka has accumulated a wide variety of professional experiences. He was responsible for Japan's involvement with the IEA and the G7 Energy Ministers meeting during the second oil shock. In the late 1980s, he participated in establishing the comprehensive energy policy of Japan and he also oversaw the implementation of Japan's international nuclear energy policy and led

negotiations of bilateral nuclear energy agreements. Mr. Tanaka worked on formulating international strategy as well as coordinating domestic environment policy and energy policy in the Kyoto COP3 negotiations and he was Minister for Industry Trade and Energy at the Embassy of Japan in Washington from 1998 to 2000. Mr. Tanaka has a degree in economics from the University of Tokyo and an MBA from Case Western Reserve University, Cleveland, Ohio and he and his wife have two children. Let me just conclude my remarks by saying I am particularly gratified to welcome Mr. Tanaka because my first job in the U.S. Government -- about the time he began his career -- was as a very junior officer involved in formulating and establishing the IEA and its oil sharing mechanism. So we are delighted to have you here today, Mr. Tanaka.

MR. TANAKA: Thank you. Thank you, Charles. It's a very great honor. Good morning, ladies and gentlemen. Let me begin thanking the Brookings Institution and in particular Dr. Charles Ebinger, Director for Energy Security Initiative, for this opportunity to talk to you today. I am very happy to come back to Washington all the time. I stayed in Washington twice in the Embassy of Japan here and the think tanks in Massachusetts Avenue or K Streets -- it's a great place of testing ideas. I'm always thinking this town or these think tanks providing the so-called policy market, and if you successfully sell your policies to the public, you

get the White House. If you lose, you lost it -- you lose it. So this is a very interesting test of the policies and the audiences here are good consumer of the policies and I really delighted to come back myself here to test my ideas about what IEA -- International Energy Agency -- can do and provide for the policymakers in our member governments -- not only our members, but nonmembers also -- for current challenge of the global energy security and also the climate change. Let me start.

What more fitting place, as I said, and time to be giving a public address on the need to strength our global dialogue on energy security and climate change. Here at the Brookings, with its solid expertise and history in energy and here in D.C. as I said, that the time when the new U.S. Administration announced the energy security and climate change are among the most pressing challenges facing the United States and the global community. We at the IEA certainly think this is the case and in this 35th anniversary -- Charles -- this year, the IEA -- the agency's founding -- we intend to work hard to address these very challenges and let me begin by noting how far the world and the IEA have come in the past 35 years.

Founded during the first oil crisis of 1973 and 1974, the IEA's initial role was to coordinate measures in times of oil supply emergencies like Hurricane Katrina and Rita recently. And as energy markets have

changed, so has the IEA. Its mandate has broadened to incorporate the three Es, so to speak, of balanced energy policy making -- namely energy security, economic development and environmental protection. Now in 2009, our core mission helping governments to support their economies with secure environmentally acceptable energy remains the same. And our skills, experience and ability to bring people together are more relevant than ever.

But the landscape has shifted and the cast of players is different. The member countries of the IEA no longer dominate the world energy markets as consumers or as producers to the extent they once did. With great and welcome achievements in economic growth in many parts of the developing world, the IEA member countries no longer represent the bulk of global energy consumption and their share will continue to diminish. Our research shows that non-OECD countries will account for 87 percent of global energy demand growth between now and 2030 -- taking their share of world primary energy demand from 51 percent now to 62 percent in 2030. In particular, China, India and the Middle East have emerged as the regions with the most rapid growth in energy demand. Alongside this, we are witnessing a shift in the sources and nature of production. The role of major international oil companies in production -- in oil production is declining along side that rising role of so-called national

oil companies. Additionally, the production in mature OECD oil provinces is declining and we now face the prospect of increased reliance on OPEC producers. Indeed, our projections show that the OPEC share of global oil output will rise from 44 percent in 2007 to 51 percent in 2030. In this context, security of energy supply represents a huge challenge as we move forward. But on top of this, our very notion of energy security is broadening.

In the past, we may have focused only on responses to oil supply disruptions and this still remains vitally important, of course, but, we must also now consider gas security. As shown clearly by the recent Russian-Ukraine gas crises, as well as the reliability of renewable energy sources and ensuring stable electricity markets -- all of this requires enhanced trans-national cooperation. At the same time, we are today confronting a phenomenon that might very have been thought possibly 35 years ago and one that is inextricably linked to our energy production and use. That of climate change. As part of this challenge, we see that an increasing share of energy related CO₂ emission will come from non-IEA member countries. Coal in non-OECD countries, for example, is the single biggest contributor to CO₂ emissions and its share will increase considerably over time. These developments highlight a growing global interconnectedness in the energy arena and the need for an enhanced

global dialogue to address this interconnectedness including between IEA members and nonmember countries. Of course, the ongoing dialogue between producing and consuming countries already enhanced by the creation of the International Energy Forum -- IEF -- was taken forward in 2008 by the ministerial meetings in Jeddah and London. And other forums and mechanisms also exist, but we can and must go a lot further. I appreciate and welcome the fact that here in the United States, the need for such an enhanced dialogue is being increasingly recognized by government and observers alike, particularly with regard to China. One need only look at recent statements by Secretary of State Clinton or at the release last week of two think tank reports on U.S./China relations on climate change, including one by the Brookings. The fast forward for sustainable energy future requires enhanced engagement between developed and developing countries including between the U.S. and China. This can be achieved through a greater focus on mutual areas of interest such as energy efficiency, low carbon technologies and energy security measures -- in all areas in which the IEA has expertise and is already working with China.

Alongside of phenomena of energy security and climate change, there is a third and related factor that is vitally important to consider in the context of a global energy dialogue, and that is the need

for continued investment in the energy sector. Looking at the medium and longer term, it is crucial that we have adequate investment -- the first on the supply side to meet growing demand and production decline and second on both the supply and demand side to properly address climate change. Of course, I can go no farther without mentioning current global economic conditions. Indeed, recent global events may be overshadowing our focus on longer-term concerns about the investment needed for insuring safe, secure and sustainable supplies of energy. The current downturn may be giving relief from the extraordinary high oil prices that we saw last year. But, while we may be seeing weaker demand and lower prices now, the medium to longer term picture clearly indicates continued energy demand growth along side supply side challenges.

Of such the current crises threatens to derail the supply-side investment needed for the future. This in turn could see us facing a supply crunch in the midterm when the global economy picks up again thereby threatening energy security. Additionally, we need to maintain our focus on long term investment for a low carbon future by fostering energy efficiency, hydrogen technologies, renewables, carbon capture and storage, nuclear power, alternative vehicles and other new technologies. Let me note here that these two parts of the investment equation traditionally supply side investment in support for low carbon technologies

are not incompatible. Rather, both are needed. This is shown clearly in our latest World Energy Outlook released last November. Even in our lowest carbon scenarios of 450 ppm of CO₂ in the atmosphere, oil demand in 2030 will still be slightly higher than that of 2007. And OPEC production may increase by another 12 million barrels per day from currently 36 million barrels to 48 million barrels per day in 2030. As such, the governments and the energy sector across the globe must maintain a focus on investment. We must view the financial crisis as an opportunity more than a challenge to move forward a cleaner, more secure energy future. This can be done by ensuring that the sound energy investment strategies are at the heart of every economic stimulus package as well as through greater global dialogue and cooperative efforts.

We have been making recommendations on this for some months now and we are calling it the Clean Energy New Deal. The New Obama Administration has just presented an excellent first example. So here, ladies and gentlemen, we have the basis for shifting gears in the global energy dialogue. First, the widening notion of energy security. The second, the compelling need to address climate change. And the third, alongside both of these, the great need to maintain energy sector investment -- even in the face of global economic crisis. A common factor in all of these global developments is that the need to design energy policy

in cooperation with other countries -- both IEA and non-IEA -- is increasing. Perhaps, the most telling demonstration of this is that even if all OECD member countries were to reduce their CO₂ emission to zero by 2030 -- we would still not be on the path that adequately address climate change unless non-OECD countries were also to reduce their emission from current trends.

Another example is that with the vast majority of energy demand growth to come from non-IEA member countries in the coming decade, IEA countries must work with these nonmembers to address energy security in light of the interconnectedness of global markets. In the case of the United States, for example, even if oil import dependency may decline in the coming years, increasing import dependency in other major consuming regions -- notably Asia -- may well have knock on effects for the U.S. market in the crisis. As such, many of the old artificial divisions of us and them are falling away. More than ever governments around the world are facing the same critical energy challenges and pursuing the same energy policy objectives. G8 Summit leaders have noticed the high potential within the IEA and have tasked us with many challenges since Gleneagles in 2004. These include reliable access to affordable supplies of energy, increased energy efficiency, the wider availability of advanced clean energy technologies including renewable technology CCS,

enhanced capabilities for energy emergency response including for gas as well as oil supply security, efficient and well balanced energy market to spur investment, economic growth and development, improved data and analysis for policy making and well-focused energy R&D for the future. Such policies are essential building blocks for a revolutionary future for secure and sustainable energy. Recent G8 communiqués reflect many examples of our contributions.

So now as humankind faces these urgent and unprecedented challenges in the energy sector, a genuinely global dialogue is needed. The dialogue should focus on energy security and climate change and, in relation to both of these issues, must address the challenge of adequate investment. It is my view that the IEA can and must remain at the center of such a global dialogue.

The IEA is the only international energy organization with expertise across the entire energy field. We have a philosophy of open markets and diversity of supply. We have a reputation for objective and independent analysis and we provide a range of forums in which governments -- both IEA members and non-IEA members -- as well as researchers and industry experts can come together to solve common problems in a practical and cooperative environment. The convergence around the world of policy objectives in the energy arena creates both the

opportunity and the necessity for a genuinely global approach to energy policy cooperation. To achieve this, we may need new international institutional structure as some international leaders have already suggested such as Bob Zoellick. The IEA, with its extensive experience, existing capabilities and established relationship is well qualified to play a key role in the search for such new structures without substantial additional costs through utilizing and building on existing mechanisms.

The extreme urgency of today's energy challenges require that this search begin at once. Its urgency is another reason why the IEA is well-suited for this kind of task. The agency has already changed markedly from the organization that was established in 1973. This pace of change has accelerated in recent years. A wide and growing range of collaborative activities with China, India, Russia and other developing countries hinges on recognition of shared areas of policy interests between member and nonmember countries. The demand for these programs has grown rapidly, and we are seeking resources for further expansion. Resources permitting, we are aiming to expand our contributions to training and capacity building in nonmember countries. We maintain a continuing and close dialogue with OPEC and with leading producing countries. The internationally recognized success of the joint oil

data initiative is a great example of the cooperation between the IEA, OPEC and several other key international organizations.

Another example is that in 2007 the OPEC Secretariat joined the IEA's cooperative program on technologies for greenhouse gases from fossil fuel use -- something that would have appeared unthinkable only a few years ago. Increasingly we are involving major developing countries in the work of the IEA's policy committees and meetings of high level energy officials. In that vein, our members recently decided to invite China, India and Russia to attend as full participants, the IEA's October 2009 Ministerial Meeting. This and our myriad of other activities are helping to establish new and closer energy relations -- not only between the IEA, Secretariat and these countries -- but, also between IEA member countries themselves and nonmembers. Of course, how far we are able to take this will depend on responses that we receive. It takes two to tango. But I am optimistic that these countries, like our own members, will see the advantages in terms of their own policy interest of working with the IEA. And if that is the case, I think we should leave no stone unturned in seeking new and even more creative way to nurture these relationships.

As we prepare to move forward, we should always ask ourselves what is our ultimate goal. Is it to expand the membership of the IEA? This is a profound and highly political question for IEA members and

potential candidate countries alike -- and one that we know the new Secretary of State has said she wishes to address at least in the case of China and India. Members of the IEA are required to hold 90 days of oil stocks and to participate in the common emergency stock release mechanism. The share -- they share in the costs of agency and, of course, they have voting rights in our governance structure. The member countries must always subscribe to the shared goals of the agency, which include the promotion of open and diverse energy markets. The question of membership must be considered in the context of these facts. Other possible changes in international economic structure should also be taken into account. While it is not currently possible for a country that is not a member of the OECD to join the IEA, there is, in fact, a great deal of flexibility short of full membership to involve these countries more closely in all levels of the IEA work. This means that, consistent with recent comments by Secretary of State Clinton, the IEA can explore a range of activities to lay the groundwork now for possible membership. Such involvement may hold great interest for nonmember countries and also give them time to assess the benefits and the costs of eventual membership. Additionally it can be of complementary benefits to the IEAs own member countries -- including the U.S. -- as they seek to enhance their own bilateral cooperation with countries like China on energy-related

issues. In fact, the IEA was always intended to be capable of a variable geometry. Our founding documents gives us very wide scope to initiate new structures. This has enabled us to create a network of more than 40 separate forums for collaboration on energy technologies in which China, India, Brazil, Mexico, South Africa, Russia and many other countries who are not members of the IEA participate on the basis of equality with both IEA members and with industry partners. The fact that India is leading one of these -- a very important new activity for demand side management, may be a sign for the future. Another pioneering initiative that builds on the flexible nature of the IEA structure and the growing desire for global energy dialogue concerns -- energy efficiency. We are now in discussion with G8 countries, the European community, Brazil, China, India, Korea and Mexico to the establishment of a high level, international partnership for energy efficiency cooperation -- we call it IPEEC -- with a permanent Secretariat to be hosted by the IEA in Paris. This partnership not only recognizes the shared importance of energy efficiency policy for the IEA member and nonmember countries alike, but also the flexible opportunities that exist for the IEAs own expertise to be utilized in this regard. And in this context, I believe it would be well worth exploring whether there are other perhaps wider areas of policy -- energy policy -- where a similar structure might enable us to engage all the

leading players on the basis of equality. One example might well be the field of renewables or low carbon technologies given the IEAs longstanding history of expertise in this area and its preexisting network of energy technology cooperation with nonmembers. Another might be some form of high level dialogue on energy policy more broadly. As we do for the G20 on energy matters, the IEA could support such a framework. Another example already underway is the IEAs interaction with international negotiations on climate change under the UNFCCC -- United Nations Framework Convention on Climate Change. While in no way seeking to play any direct role of negotiations, the IEA provides data and undertaking analysis to help the negotiating parties make informed decisions. This role could be enhanced to provide further assistance as the negotiations move forward. Ladies and gentlemen, the world has changed. The role of the IEA in helping governments to deliver national and global energy policy objective is more important than ever. And the IEA is changing to enable its member countries to engage without preconceptions and on the basis of full equality with leading players in today's global energy economy. We have -- and we have shown the flexibility to efficiently and effectively adapt our structures to this need. The world needs global solutions on energy security and climate change and the IEA is the right place to develop them. Ladies and gentlemen,

please use us. This is my message. Thank you very much for providing me this opportunity.

MR. EBINGER: Thank you, Mr. Tanaka, for that very forward looking speech. I would just like to comment that I hope in your discussions with the new officials in the Obama Administration, that you keep promoting the idea that we need global solutions to these problems because, quite frankly, I am somewhat alarmed about how we still hear people -- including our beloved new president -- talk about energy independence for the country. And I think the kinds of solutions Mr. Tanaka was proposing are at sharp variance with what we're hearing, unfortunately, from some of the new leaders in both our energy and environmental positions. If I may take the prerogative of the chair, Mr. Tanaka has 'til just shy of 11:00, so we'll give him the floor, because you want to hear from him -- but if I may take the first question, sir. Given the vast amount of coal that leading countries such as the United States, China, India and South Africa and others have -- and, of course, the contributions that coal is making to CO₂ emissions -- I was wondering what initiatives you might have thought about in terms of how we could truly have a global effort to try to both prove that commercially and technically that carbon capture and storage is indeed something the world

should be spending resources on as we look to meeting our long term climate policies?

MR. TANAKA: Thank you. That is one of the very important questions which IEA, in fact, was asked about in our work to the G8 Summit meeting. Certainly, as Dr. Ebinger said, the coal is very important and abundant and relatively cheap source of energy. So, those countries abundant with coal will definitely use these resources -- China, India and the United States and certainly Australia wants to export it as much as possible. But CO₂ will come. So the solution for this is the carbon capture and storage technology. It's not yet proven in a demonstration -- in a commercial demonstration size. There are about four pilot project all over the world which is working on CCS. IEA was asked by the G8 summit to identify 20 demonstration plants -- potential -- at least 20 demonstration plants around the world by 2010 to move ahead and test the viability of the cost, technologies, legal frameworks for the future broader use. And I think we are now developing so-called technology road map of 17 key technologies for the future -- including CCS -- and showing what kind of technological breakthrough necessary. What is the cost for that? How much investment happens? In which country? And what kind of international collaboration is necessary? What is the necessary legal framework and when it should happen? These kind of things are going to

be advised to the G8 again starting in the Italian Summit. So I strongly believe the CCS will play a very key role. In our energy technology perspective we have published last year, the power generation must be fully decarbonized by 2050 and half of it should come from renewables. But renewable cannot solve everything. Renewables including biomass, biohydro, solar, wind can cover 50 percent. Other 50 percent out of -- half of it, 25 percent must come from nuclear. Another 25 percent should come from CCS with coal and gas. So this is the kind of global portfolio mix which we have projected. So certainly the CCS is a key single technology to achieve -- especially in China -- because China is burning coal like -- tremendous increase will happen there. So without this technology possible in China, simply what we are discussing in Copenhagen is scientific fiction. So we are calling -- this CCS is a litmus test of the seriousness of the negotiators in Copenhagen. Thank you.

MR. EBINGER: Why don't you stay at the mic and I'll call on -- so we aren't walking back and forth (inaudible). We have some mics here -- so the gentlemen in the blue shirt in the back.

MR. OBERLANDER: Thank you. I'm Leonard Oberlander. Since there are extensive partnerships -- international partnerships -- of energy companies in the United States with energy companies both privately and state owned in other countries, and while there is a

protection from mutual interference between private sector corporations in the United States and the government with the United States, how do we proceed with a more global energy policy when the interests of the shareholders or owners of the energy company in the United States in partnerships -- their global partnerships -- are less influenced here by the government? How do we proceed without the government taking a stronger management position over the corporations to accomplish this? Thank you.

MR. TANAKA: Okay. Well, of course, we strongly believe that partnership or collaboration between the oil companies or private companies, with national oil companies or from international oil companies is inevitable. We think that a role of national oil company will increase vis-à-vis international oil company, because it's inevitable that the resources limited and some times access to the resources are limited to only those national oil companies. So, but at the same time, this fluctuation of the prices or need for the investment or need for technologies -- the role of international company will not decline. So the collaboration or innovative way of collaboration is certainly very important. And I wish that government's roles still there to enhance -- not to constrain -- the role of these collaborations. I don't know exactly what kind of examples you are mentioning about to the government constraint. In case of the producing

countries, sometimes the access of international companies are limited and IEA is always showing the concern that this kind of limitation must be eliminated. Otherwise necessary technologies or financial resources cannot go into the future capacity increase in these countries.

MR. MITCHELL: Thanks. Gary Mitchell from the Mitchell Report. Mr. Tanaka, you spent some time talking about the activities of the IEA and sort of ended your conversation with a request that we -- we collectively -- call on you -- use you. I wonder if we could sort of shine a light on the IEA through a different question. And the question would be this, suppose that after your meeting here today you walked out the door and someone said, guess what, they've just closed the agency down. It's out of business. What would be the -- what would you suspect would be the short term tangible effect of that? How would -- how would we see and feel that?

MR. TANAKA: I see.

MR. MITCHELL: And over time, how would we see and feel that?

MR. TANAKA: Probably the most, let's say, urgent shock if IEA were extinct from the globe is that it will be felt by the market -- the oil market. Because our role of stabilizing oil market in case of emergency is enormous. If -- I am very carefully tell about the future projection of the oil

market to the journalist all the time, because my statement may have a strong impact to the price of oil. It could go up and down \$5 easily. We are always asked if we release the strategic stockpile when the price level is at such and such. We are saying yes, we will use it if necessary in this physical disruption or risk of disruption happens. So this stabilizes the price dramatically. So our role on energy emergency has already been proven in Hurricane Katrina and Rita. When the price went up very high, we release two million barrels per day collectively and the price went down dramatically. So if we don't exist, speculation certainly will happen in much more volatile way. So that is the first -- probably most important and substantial role of the IEA was created. But as I said to you, this role or function must be strengthened by farther collaboration with major consumers like China and India. Otherwise, my speech or statement could be much less -- has impact if these companies -- countries are not cooperating with us. They understand that we are working together with these major users and they understand how to use strategic stockpile, for example. They're a temptation here in Washington, too, to use strategic stockpile in case of high oil prices. We are not in favor of using in such kind of situation. We are in favor of using stockpile in the physical disruption. We cannot print oil. You can print money, but we cannot print oil. And the source of the resources of producing countries are enormous

compared to our reserve. So we cannot frequently print oil and use in the market, but our existence itself is certainly a very important stabilizing power. So engaging -- China understand this role and now they agree to use stockpile which they are accumulating in case of physical emergency only. They agreed not use it when the oil price is high only. So this kind of cooperation is really helpful and we want to have further collaboration or enhanced engagement so to speak into the future. Probably this is the largest thing. Other assessment -- our statistics probably market will suffer the lack of objective oil market report every month, but well somebody could replace. Brookings may publicize other, let's say, data and everybody will watch it. Well, so it's not must from IEA. But IEA as an objective third party government, public organization, our data and analysis are very highly regarded by the market. So that is another -- a second probably most important contribution of our organization. Beyond that, yes, this technology issues or climate change related analysis -- yes, this is definitely very important. But, not as urgent as the first two examples probably.

MR. EBINGER: Yes. Could you identify yourself?

MR. LEMON: Yes. My name is Jim Lemon and last week I became a blogger. I started a blog called Our Punishing Policy on the Price at the Pump. Over the past half century, the annual average real

price of gasoline in this country has been about \$1.54 -- over the past half century -- over the past half century. That is why we have a growing stock of millions -- tens of millions of gas guzzlers on the road in this country. Now, my view is to address the EEE -- the energy and environmental and economic issues you addressed -- you're going to need to address the PPP. And that is the policy countries have on the price at the pump for gasoline. So here's my question. EIA is a policy advisor to a large number of foreign countries. Why should EIA not strongly recommend the joint creation of an organization of petroleum consuming countries headed up or founded by the U.S., China and India? The purpose of which would be to coordinate sustained, focused and intelligent increases in taxes on gasoline and other petroleum-based transportation fuels.

MR. TANAKA: Interesting. Well, IEA is certainly playing a probably very important role of energy consumption in the transportation sector. We are strongly recommending energy efficiency, because energy efficiency is cost effective way of increasing energy security as well as eliminating CO₂ emission. So stringent fuel standard is what we are recommending. We are initiating so-called global mobility initiative and preaching that 50 percent increase of energy efficiency in total fleet will be possible by 2050. So energy efficiency in the transportation sector is the key issue. The gasoline tax -- yes, each country has a gasoline tax --

different gasoline tax. Some countries gasoline tax -- especially in Europe -- is very high. U.S. is fairly low. So it depends -- it's a government policy how you tax the gasoline. And we know this is a very serious political issue here. But, in the end, now United States Government is thinking about so-called cap and trade system. Cap and trade means limit the CO₂ emission to certain quantity by pricing the carbon. The pricing the carbon means higher energy prices to the consumer and in our analysis by the World Energy Outlook, to achieve this 450 ppm scenario, which is more or less leading to the 50 percent reduction of the CO₂ by 2050 and leading two degree Centigrade increase of the atmospheric temperature to the end of the century. Also this corresponds to the current governments target of 85 percent reduction of CO₂ of the United States by 2050. By the way, to achieve this cap and trade mechanism be introduced not only OECD countries, but also emerging economies together and the price of carbon is \$180 per ton of CO₂ by 2030. \$180 per ton of CO₂ means about \$90 per barrel of oil. So, this is the consequence of reducing CO₂ emission. And thirdly, this is where the government should move and IEA's role is providing data for the reality check -- how this said policy result in terms of the prices. And from the structure of supply and demand, I said yes, it's a challenge for the investors to match the increasing demand by increasing supply. So, from supply-demand

structure and climate change challenges, energy prices will be higher. So IEA is one of the major message now is cheap energy age is simply over. We have to live with this and business models should live with that. Government policy should live with that. Otherwise we don't have future. China realized this very well and they are strong intense -- I would say, very ambitious target of energy efficiency or reducing energy intensity is remarkable. So IEA is very much appreciative of such (inaudible) to creating new system -- economic system. In the G8 Summit in Hokkaido, I was very impressed with the President Hu Jintao's remark. He said yes, China will really reduce energy intensity by introducing new lifestyle or new economic system in all over the country -- transportation sector definitely be one. It certainly helps to mitigate the CO₂ emission, but we are doing it not for somebody else. We are doing it for our own sake -- our own economic development. That's what he said. So, China certainly at the leadership level understand what must happen. So I think the globally -- the direction in the transportation sector or pricing of the energies are clear. So, how each country will accommodate its policies and business models to that -- this is a global competition -- but at the great opportunity that we could find out a new lifestyle or new system of economic growth. That is the energy revolution that we are calling for.

MR. EBINGER: I think we have time for two more quick questions. Yes, sir.

MR. COOK: Steve Cook with BNA Daily Environment Report. What role do you thin speculation played in the --

MR. TANAKA: Excuse me?

MR. COOK: What role do you think speculation played in the \$150 per barrel oil of last year and do you think that the global credit crises has largely eliminated such speculation and played a big role in the reduction of oil prices this year?

MR. TANAKA: The speculation issue is -- certainly we have very much concern. The high price -- behind the high prices, there are various elements. At the G8 Summit, I was asked by your president and other leaders ha, you are Mr. Tanaka. You are responsible for these high prices. What the hell happened? I should have said at that time don't worry, Mr. President, the price will be \$40 in six months. Then I could have been a hero now. But, unfortunately nobody noticed what would happen in the future. We know that elements behind this high \$147 is certainly the fundamentals is the basics. So basic direction or vector of the price was decided by demand and supply situation. The supply is not catching up with growing demand or either it's steady, it cannot catch up with it. So that provide the environment where speculation works. So

speculation is secondary in a sense to decide the direction. But it has a huge impact to the amplifying -- the up and downs of the prices. Certainly at that time weaker dollar has a big contribution to the price. What your political risks contribute -- or weather projections or lots of elements behind price -- but speculation certainly sometimes overshoot to the upward and downward also. Now it is downward -- I mean shooting downward. That's what we think. That's the current -- that's our view about the price level.

MR. EBINGER: I think, unfortunately, I think we're going to have to cut it off there. I promised Mr. Tanaka he would be in a taxi at 11:00 (inaudible) at the time, I think we probably need to abide by that. We want to thank him very much for his very forward and thoughtful and provocative remarks. We want to thank the audience for coming out today.

(Applause)

* * * * *

CERTIFICATE OF NOTARY PUBLIC

ANDERSON COURT REPORTING
706 Duke Street, Suite 100
Alexandria, VA 22314
Phone (703) 519-7180 Fax (703) 519-7190

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

/s/Carleton J. Anderson, III

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2012

ANDERSON COURT REPORTING
706 Duke Street, Suite 100
Alexandria, VA 22314
Phone (703) 519-7180 Fax (703) 519-7190