

WORLD ENERGY OUTLOOK 2011

MONDAY, NOVEMBER 28, 2011

10:00 A.M.

WASHINGTON, D.C.

WELCOME/MODERATOR:

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Energy and Climate Program, Carnegie Endowment

SPEAKERS:

Daniel Poneman

Deputy Secretary of Energy

Department of Energy

Maria van der Hoeven

Executive Director

International Energy Agency

Richard Jones,

Deputy Executive Director

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Fatih Birol

Chief Economist

International Energy Agency

Transcript by Federal News Service

Washington, D.C.

JESSICA MATHEWS: Good morning. I'm Jessica Mathews, president of the Carnegie Endowment for International Peace. It's my pleasure to welcome all of you to today's event.

We are, as an institution, pleased and honored to host the U.S. launch of the International Energy Agency's World Energy Outlook, a sobering document whose findings are of enormous importance to all Americans.

We're pleased to host the IEA because this is an enormously valuable institution, for its well-earned reputation for both rigor and reliability in data collection and in analysis, and at the same time for its absolute independence in following where the data lead, without politics getting in the way.

One has only to look at the many other global issues where such an institution does not exist, to appreciate its importance. And I think that independence and rigor will be very in evidence in today's discussion.

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And finally, we are pleased to have the privilege of hosting this event because of the work of our own energy and climate program. We have centers on the ground and working on these issues in all of the world's largest energy emitters, energy-carbon emitters, in China, the U.S., the EU and Russia.

When we set out to build the world's first global think tank, we did so with particular attention, of course, to addressing the global issues, of which there is none, in my view, more important than the one we are discussing today.

This could hardly be a more timely moment, being the first day, as I think everyone here knows, of the Durban conference and of the U.S.-EU energy summit.

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More broadly, we are sitting between a fragile and halting global economic recovery, a deepening euro crisis, accelerating climate change, and historic instability in the Middle East. The World Energy Outlook touches directly on all of these.

The news is not particularly good, especially for our climate. The report warns that unless the world's major energy economies make a decision to rapidly shift away from fossil fuels as the primary energy source to power their economies, we will be locked into levels of global warming that have not been experienced perhaps for millennia. In the view of this report, governments have a mere five years to make this momentous decision.

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Yet at most, the U.S. Congress dithers and often it does much worse. Last week, Congress passed a law prohibiting the National Oceanic and Atmospheric Administration from establishing a single, coordinated and comprehensive climate, energy, information, data – information center, to provide people with easy access, whether they be farmers who need to know when to plant their crops, or urban planners who need to know whether there will be groundwater to support plant development, or insurance companies who need to be able to calculate risks for their future coverage.

Congress seems to think that what you don't know can't hurt you. And we all know the truth of

that one. This report lays out the consequences from refusal to face facts, and let's hope that our legislators and American citizens, who have, too many of them, chosen to look the other way, are listening.

Climate change – I have worked on climate change since the early 1980s, and so I say this with a really strong personal experience. It is no longer a future threat. We have passed, I think, from a period where it seemed like a future threat, to one where it is an urgent threat requiring immediate action. It is a security threat, an ecological threat, an economic threat, and a personal threat to health and well-being.

Let us hope that those who are meeting today in Durban are listening also to the findings of this report. As the world pursues an agreement designed to hold global temperature increase below 2 degrees Celsius, the World Energy Outlook gives us a good sense both of the urgency of the action required and of the dimension of the consequences of failure.

We have a distinguished panel here to discuss this important document. We're very fortunate on this busy day to be joined by the key actors in consideration of the WEO.

Dan Poneman, our first speaker, is the United States deputy secretary of energy. During long service in Washington, he has established himself as one of the country's foremost voices in particular on nuclear power and nonproliferation.

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Maria van der Hoeven is currently the executive director of the IEA. Before assuming office a few months ago, she was a member of the Dutch parliament and was recently served as minister of economic affairs.

And Fatih Birol is the chief economist of the IEA, someone who has acquired a reputation worldwide for his knowledge and independence, recently named by Forbes magazine as one of the most influential people on the world energy scene.

Moderating today's discussion is Adnan Vatansever, senior associate at Carnegie's energy and climate program, and a leading expert on the energy sector in Eastern Europe and the former Soviet republics.

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So let me thank all of you for joining us today for a discussion that I think touches on really half of the world's economic as well as energy future, with implications that demand the closest attention from all of us. Please join me in welcoming this distinguished panel.

(Applause.)

ADNAN VATANSEVER: Thank you very much, Jessica. My name is Adnan Vatansever. I am a senior associate here at Carnegie's energy and climate program. And one of the major objectives of our program is to serve as a global platform for leaders, experts and scholars in energy and climate. And I think this is, today, what we are doing, one great example for that.

We are very fortunate to have three leaders in that field: Mr. Poneman, Ms. van der Hoeven and Mr. Birol.

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And what I would like to do very briefly is overview the program for the next about 85, 90 minutes. We'll start with deputy secretary's speech, Mr. Poneman's speech, who will provide the U.S. perspective. This will be followed by Ms. van der Hoeven's speech. She will do the opening remarks for the U.S. launch of the World Energy Outlook 2011. This will be followed by about half-an-hour presentation by the chief economist of the IEA, Mr. Fatih Birol, and also his closing remarks followed by that.

And we'll have about a half an hour for question and answers, maybe slightly more than half an hour, about that.

I'd like to inform you that two of our speakers, Ms. van der Hoeven and Mr. Poneman, will have to leave at around 10:30, but we will have quite enough time for a very good conversation afterwards.

And I'd like to give the floor to Mr. Poneman.

DANIEL PONEMAN: I would be honored to speak before your nameplate. (Laughter.)

Good morning, and thank you all for joining us here today. I want to thank the Carnegie Endowment for International Peace for hosting today's important event. And I would like to here acknowledge the outstanding contributions, intellectually, policy-wise, pragmatically and otherwise, of Jessica Tuchman Mathews on energy issues, on climate issues. She has been a voice of reason, of passion, of commitment, of pragmatism. And I think we, all of us, owe a debt of gratitude. And the leadership that she has brought to the Carnegie Endowment is something that I think has been a global service, and we are all truly grateful.

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It's been over three decades. I actually remember at the beginning in the aftermath of the 1973 oil crisis, when the thoughts went into developing this now-august, venerable institution of the International Energy Agency. And it has become truly an important forum for member countries to work together to address global challenges, and frankly has breached the initial boundaries of its initial mandate of a crisis-management organization, and plays a much wider role in developing solutions for a much wider array of energy issues.

The research and analysis, which we're about to hear about in great detail, offers invaluable data resources for the international energy community, helping to inform our individual and collective efforts to strengthen energy security, to promote economic growth and to reduce global carbon pollution.

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The United States and other IEA members rely on the agency for solid data about energy markets, incisive analysis about trends in the energy sector, and a deep understanding of the policies and technologies that will help to strengthen global energy security in the near term and navigate the future to a clean-energy world for us all.

But the IEA is truly more than an analytical support for its members. It provides an important forum to discuss and, where appropriate, to take actions in support of the security of global energy supplies. And in this respect, I personally would like to commend the IEA for its responsible, yet forceful and effective response that they worked throughout the international community, with its members

governments, in response to the disruption to world oil markets that was occasioned by the distressing events in Libya of the loss of 1 ½ million barrels per day, starting in about February.

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And I think, without having had the forum that that provided, that, frankly, the trusted relationships that had developed over time and the effectiveness of the leadership of the IEA, we would not have had an effective, collective response to what was actually a very serious problem.

I would also like to commend the IEA's contributions to the global Clean Energy Ministerial. This Clean Energy Ministerial is an annual gathering of energy ministers whose countries collectively account for more than 80 percent of global greenhouse gas emissions and over 90 percent of global clean-energy investment.

The agency's recommendations published in its Clean Energy Progress Report help to inform the broader conversation between the energy ministers and add an important perspective to our meetings.

In all of its operations, the IEA is working to facilitate cooperation and collaboration between partner countries, that enables the global community to advance our shared energy goals. The agency's leadership in promoting sustainable energy solutions has put it at the center of the global energy conversation.

I want to be very clear that the United States remains committed to continuing to partner with the IEA to assure its ongoing capabilities and effectiveness. The IEA's data analysis and trend information provides the intellectual underpinning that enables countries to understand the current energy landscape, where we are heading and how we can get to where we want to go.

As we make decisions that affect our energy future, we need the best information possible. And as you just heard from Jessica Tuchman Mathews, that is not always what we are getting. And that's why it's particularly important that we have this unique resource.

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That need for good data is why I am so pleased to be able to join you here today to highlight the release of the IEA's 2011 World Energy Outlook. By providing the international community with the latest energy-demand and supply projections for different, future scenarios for different countries and for different economic sectors, we can better understand the global energy market.

And now it is my pleasure as well as my privilege to introduce an esteemed colleague, Ms. Maria van der Hoeven, the executive director of the IEA, who will go into greater depth about this year's findings. Executive Director van der Hoeven took over leadership of the IEA this past September after serving as Netherlands minister of economic affairs from 2007 to October 2010.

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It was my pleasure to have the opportunity to meet with Minister van der Hoeven at that time at the Cancun ministerial of the International Energy Forum, and I immediately saw what you are about to see, which is an incisive mind, a practical approach to solving some of the greatest problems that face the world. I was struck by her vision, by her clarity of purpose. And this is something that we truly, all of us, need at such an important time in our history.

In her role as minister of economic affairs, she led several of her country's important energy reforms, including infrastructure modernization and extension, developing the Dutch gas hub policy and accelerating the development and use of renewable energy.

Executive Director van der Hoeven has also played an active role in developing European energy policy, focusing especially on market liberalization, building cooperation between nations in the electricity sector and finding ways to further strengthen energy security throughout the region.

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And from her new position at the helm of the IEA, we look forward to her continued contributions and to her leadership in driving international energy policy.

With that, I hope you will please join me in welcoming the IEA's executive director, Maria van der Hoeven.

(Applause.)

MARIA VAN DER HOEVEN: Thank you. I'm going to follow your example.

Well, thank you. Thank you very, very much for your extremely nice words of welcome. But I have to live up to it, so it's also a challenge. But thank you.

Ladies and gentlemen, welcome, and thank you for joining us here in this wonderful Washington, D.C. launch of the 2011 edition of World Energy Outlook.

I would like to thank Dr. Mathews and our hosts here at the Carnegie Endowment for your very kind invitation to come share the key findings of the report. And I'm very honored that you, Deputy Secretary Poneman, are here to offer additional context to our presentation.

Please do accept my sincere apology for having to depart earlier than originally planned. I will have to run off after my opening remarks this morning to meet Secretary Clinton. But the good news is that I'll be leaving you in the very capable hands of my chief economist, Fatih Birol. And I'm coming back afterwards, of course.

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Now, since the beginning of September, it has been my privilege to lead the International Energy Agency. And as a former minister with responsibilities with economic and energy discussions, my background is that of a policymaker. And my mission at the IEA is to bridge the divide between analysts and politicians so that informed energy policy decisions are made by governments all over the world, both IEA members and non-IEA members alike.

And that's where the World Energy Outlook comes in. It's an invaluable tool to this end. And it provides us with a wealth of information and rigorous analysis of global market trends. And these things should help policymakers understand where we are headed and what still needs to be done to arrive at a sustainable energy future, as you were just telling us, Mrs. Mathews.

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Now, the scale of the energy challenge is becoming increasingly daunting, making this year's outlook perhaps timelier than ever. Well, just in the previous year, the accident at the Fukushima nuclear power plant and the turmoil in parts of the Middle East and North Africa have introduced some new wrinkles of uncertainty in our energy future.

And at the same time – at the same time – I do have ongoing concerns about the global economic recovery, because all the attention now, all the focus of attention now looks as if it's going towards the financial crisis. But dear friends, let's be quite, quite sure about this. This financial crisis we will overcome. Oh, yes, we will. Maybe not today, not tomorrow, maybe even not next year. But the energy crisis and the growth in energy demands and the climate change will still be there. So it's necessary that we have to see to it that the focus of attention of our governments is not going to be turned away from energy policy. It has to be turned to energy policy and climate change as well.

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Well, I'm confident that the World Energy Outlook will prove its worth in helping policymakers to navigate their way through all these uncertainties.

There is an – it is an overarching message in the report, and this message is that without an urgent and radical change of direction and – (inaudible) – by robust energy-policy frameworks, the world risks itself being locked in, locked into an energy future that's unsustainable, with potential harsh consequences for the global economy, for energy security and for the environment.

We must remember that much of the energy-using equipment and infrastructure that we build today or built yesterday or the day before yesterday – power stations, buildings and factories – will be with us for decades to come and actually eat up – (inaudible) – of the – (inaudible) – CO2 emissions in the years to come. That's where Mr. Fatih Birol – that's what Mr. Fatih Birol will emphasize during his presentation.

We think it's critical that our energy consumption becomes more efficient and less carbon-intensive. Now, this year's report has a special focus on Russia. And this shows the sizable bounty that could be off of the energy-efficiency gains. And the outlook demonstrates very clearly that governments need to introduce much stronger measures than currently envisioned to drive forward investment in efficient, low-carbon technologies.

And this is essential to deliver an energy supply that is more secure, and help us avoid potentially catastrophic climate change.

And as we discussed with a great number of top industry executives during our ministerial meeting in October, the investment challenge is massive. And we estimate that 38 trillion U.S. dollars needs to be spent in the energy sector to satisfy rising energy demand between now and 2035.

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Now, we are in the United States, so I'd like to highlight one of the good-news stories in our outlook.

In fact, with previous outlooks and especially toward having highlighted this suddenly bright prospect for natural gas, this is not the first such story the United States has heard from us recently. But

this time, we'd like to call attention to a remarkable shift taking place for U.S. oil security.

It was only in 2005 that U.S. liquids demands peaked at over 20 million barrels per day. And this necessitated about 30 million barrels-per-day of oil imports. And by 2035, we project U.S. liquids demand will have fallen to about 16 million barrels per day, with oil imports cut to 6 million barrels per day.

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Now, first and foremost, this impressive trend reflects the vital role of energy-efficiency policies. That's number one. But second, it also reminds us how technology innovation can spur renewed resource developments. And these are important lessons for other countries facing the prospect of stronger oil-security concerns.

But nonetheless – nonetheless – general cause of global energy trends in our outlook remains unsustainable. And there is still some time to act. And the question is, can we act? Yes, of course, we can. This window of opportunity that is shutting quickly must be reopened again. And yes, we can do that.

And there's another reason why we should do it, because the longer we wait, the progressively tougher and more expensive it will be, it will (become ?) to reach a more-sustainable pathway. So we must not wait any longer. The time to act is now.

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Dear friends, this is the end of my introduction. I thank you for coming this morning. I'm leaving you now, but I'll be coming back.

And Fatih, the floor is yours, because you will be the one to elaborate on the findings of the World Energy Outlook and underpin all the things I've been telling you just now. Thank you very much.

(Applause.)

MR. VATANSEVER: Thanks. Now, we'll have the presentation, the launch actually of the World Energy Outlook, introduced by Mr. Fatih Birol, with all of this rigorous study that has been done throughout the past year, I would say. Thank you.

FATIH BIROL: Thank you very much. So good morning, ladies and gentlemen.

So our executive director already gave you the general picture of today where we are. But I would like to highlight a couple of data points which worries us a lot.

One of them is on the CO2 emissions front. All the governments, or I should say most of the governments, puts the fighting against climate change as a key topic in their policy agenda. And there are lots of U.N. meetings, lots of good initiatives in different countries – (inaudible).

But if you look at the data, the CO2 emission data in the year 2010, we reach the record high, the highest level in the history of CO2 emissions. This is the most important greenhouse gas we have. We see that the carbon dioxide emissions reach a record high, which is a contradiction of the public statements.

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Second one, when you take the governments worldwide – energy-exporting, energy-importing, rich countries, poor countries – there is one policy item which is in all the governments' agenda: improving energy efficiency, as if it is a (contest ?) between the governments, which they never do, but as if it is a contest.

And yet, when you look at the energy-efficiency trends worldwide, normally it improves every year with the normal technological innovation. Every year, there is an improvement. But in the years 2009 and 2010, for the first time, we see two consecutive years a worsening of energy efficiency trends globally. And this, again, a – (inaudible) – a big difference between what our policy aims are and what really happens in the real life in terms of data.

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The third point which worries us is the high oil prices putting such a burden on many countries' economies, and especially on the trade balances.

So let me – this is the reason why we are a bit more worried this year than the previous years. The economic context generally, specific events such as the Fukushima and what is going on in the MENA countries – I will come in a minute to Middle Eastern, North African countries – and some data points which are in contradiction with the policy agenda of many key governments.

Let me come to some of the findings of our analysis. But I should mention to you that this analysis is a major work in the IEA, but there are many colleagues who are supporting this, some peer reviews, and two of them are here. Dr. Difiglio from DOE and Dr. Bradley from IEA made significant contribution and peer review, as has (Joseph ?) gave some comments on the Russia work.

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Now, looking at the future, where the energy-demand growth come from? The countries of the OECD, the so-called rich or formally rich countries, you see in the green bar here, their contribution to energy-demand growth is almost negligible. Energy-demand growth comes from the Middle East, Russia, India and from China.

Almost 50 percent of the growth in global energy demand will come from China plus India. And what does this mean in the real life, in real policymaking? It means the following: Decisions which will be made in Beijing or New Delhi or in Moscow will not only have implications for their own domestic energy structure, but beyond those, due to the sheer size of the energy economy in those countries, through trade linkages, for example.

Let me give you one example. Until 2009, the coal prices were about \$60, more or less stable. And China has started to import only 3 percent – only 3 percent – of this coal used, and the coal prices jumped to \$120. And anybody has to use the similar prices because of that effect.

We may see similar things in the gas markets or in terms of CO2 emissions. One ton of CO2 going to atmosphere from Shanghai or from – (inaudible) – or from – (inaudible) – it is exactly the same implication.

So therefore, these trends show us how important it is to engage with those countries, not only for those countries, but for ourselves as well, for our self-energy interests as well. Those decisions will affect us substantially.

Looking at the fuels, which will be more important, which will be less important in the future, these are different fuels and their consumption of today. And when we look at the growth in the next 25 years, we see bulk of the growth coming from natural gas and renewables. Natural gas, I will come in a minute, mainly because of the economics of natural gas are favorable in many cases. But renewables, mainly as there is a lot of government policies, substantial government policies and subsidies.

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In terms of nuclear power, countries which had major nuclear-power expansion plans, after Fukushima they have reconfirmed their plans that they will go ahead, such as China, Russia, India, Korea. They will go ahead. And therefore, we have taken into account their stated policies in our likely scenario.

But – but – there are some second thoughts in some countries which I will analyze in a minute.

In terms of oil, oil demand is growing at a lesser, smaller pace compared to gas. And there are two magic words here: transportation sector and emerging countries. Cars, trucks, jets in China, in India, this is exclusively the most important driver of the oil-demand growth. Now, when we look at the car ownership, tell you why it is such an important driver.

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Today in China, 30 persons out of 1,000 persons own a car; whereas in the United States, 700 out of 1,000; and in Europe it's about 500 out of 1,000 persons. And in China and other countries, car ownership will increase with the increasing income levels. One of the first things that people do is to buy a car in China, India, for convenience and for prestige reasons.

And it is right or wrong, this is another discussion. For me, it is completely wrong, but this is their way there. They are just following the footsteps of the U.S. or Europe. But even China, when China becomes a giant oil consumer in the 2035, overtaking everybody in the world, their car ownership will be less than half of U.S. today.

So therefore, we have no way to blame China or other developing countries for that – (inaudible) – for the growth in the oil demand. They are just doing, and not even full, what we have been doing since years.

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One of the most important findings of our study, I think, is on oil security. There is a major change in the oil-security perceptions. When we talk about the oil security, oil imports, oil prices, the first country that comes to our mind in the world as energy people is the United States. We know how important the oil prices in the United States are.

Mr. Deputy Secretary just mentioned the oil market situation. We know how important it is for the U.S. to keep an eye on oil security within its borders and beyond. Whereas, it is not a major subject in Europe for a reason that I have never understood, who lived in Europe since many years, still not a major issue in oil security either.

And oil security has been a synonymous word with the United States now. However, ladies and gentlemen, the picture is changing. And the picture is changing very rapidly.

According to our analysis, U.S. oil imports are going to decline substantially at least for two reasons. One, the U.S. has successfully managed, through new standards, putting pressure on the demand, domestic demand, for trucks, for cars and others. So they're putting downward pressure on domestic demand.

And second, we expect that domestic production in the United States, mainly driven by the – (inaudible) – oil, will be higher than many of us thought before. So as a result of that, U.S. will import less oil. And while, of course, keeping an eye on the international oil security, one shouldn't be surprised that the U.S. international oil security attention may not be as strong as today because U.S. will import much less oil than today or (appears the case?).

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Whereas in Europe, the oil imports will stay more or less the same. And Europe will be much more vulnerable to the changes in the oil markets. And according to our numbers, EU will import more oil than United States around 2015.

So I believe these trends may have implications, not only for energy, but beyond energy, for the foreign policy and so on, if the countries would read our numbers carefully. And of course, China emerges as a major oil importer. This will definitely have implications for Chinese foreign policy.

Now, Middle East and North African countries are crucial for the oil-production growth for many years to come. According to our numbers, which is similar to those from EIA, which is produced here by the U.S. government, normally, more than 90 percent of the growth in oil production need to come from the Middle East and North African countries: Saudi Arabia, Iraq, Iran, Kuwait, UAE, Algeria and others. If it is not 90 (percent), it is 88 (percent) or 92 (percent), very similar.

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But in order for this to happen, those countries, those companies in those countries need to invest. And our calculation is these countries in this region, MENA, Middle East-North Africa region, need to invest about \$100 billion each year.

However, recently, perhaps with the effect of the Arab Spring, which we hope brings much better lives to people in that MENA region, but we see that the mind-set of some governments are changing in terms of their investment and production policies. Some countries are putting much more money for social standing rather than the oil upstream. It is very visible in the data.

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Some countries are saying, as a result of the new mind-set, I will increase the production much slower and let's see what happens in the markets. And similar trends pushed us to make a – (inaudible) – case, if I may say so. What happens if, as a result of these risks, it is not 100 billion (dollars), but it is only one-third less, it is about 66 billion (dollars) investment going there, if it cut by one-third? And we see in our (deferred?) investment case, if not enough investment going there, we see that the world is very sensitive now, becoming more and more sensitive what happens in Middle East and North Africa as a result of growing demand and very sluggish production prospects outside of this very region.

So therefore, if the investment is not going in a timely manner, the output from that region will be much less, and we may well see much higher prices around 2015 at \$150, which will have a major negative

effect on the consumer countries for the oil-import biz.

But we also (maintain ?) that the Middle Eastern and North African countries can make money in the beginning because of the high revenues. But in the medium and longer term, very high prices at those levels may not be for their benefit as well, as it will induce tentative production. Some areas which are very expensive to produce oil, also in this region – (inaudible) – those prices, and could also give an impetus on the transportation sector, non-oil-based transportation systems.

But this will take time – (inaudible). In the meantime, the lower investment in that region may be very risky for the supply-demand balances.

Natural gas – some of you may know that we had made a special excerpt of World Energy Outlook in June called “Are We Entering a Golden Age of Gas?” And our answer today is, we may well be entering a golden age of gas. We don't say “we are” entering a golden age of gas because there is at least one significant problem.

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But before that problem, let me tell you that we think there are two drivers of a golden age of gas, a likely golden of gas. One is supply. Lots of gas is coming to the picture. With the revolution of what happened in the U.S. and Canada, we see many countries are repeating that example. And I think U.S. gave a very nice present through this shale gas to the rest of the world. I'm not sure if it's a deliberate present or not – (inaudible) – for the present anyways coming from United States.

China – lots of efforts on shale gas and coal-bed methane. Australia – six major projects in Australia going on now. And according to our analysis, Australia will catch Qatar in 10 years of time as the largest LNG exporter of the world. So many countries, different countries in the world, are coming here. And Poland in Europe, we are looking very closely, and it's a very – there's a very important potential there.

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On the demand side, mainly driven by China and also some other Asian countries, demand will be very strong.

So what is the problem? I think there is a major roadblock to (delay ?) the golden age of gas, mainly local (and lot ?) of problems that the shale-gas production and extraction creates. And we talked with many governments, many industry players, and this is definitely not just an Internet-gossiping or lobbying gasoline. This is a real problem in many cases – water contamination and other problems. Even in Australia, there is a very strong debate now on that very issue. And this is definitely a real problem.

However, the good news is this problem can be solved, can be minimized by using the best-available technology. But currently, not all the industry players are using the best-available technology; and therefore, our message is for the governments, please make sure that through regulation, very strict regulation, that the companies use the best-available technologies to address these problems. And if the companies would really like to see a golden age of gas, they have to apply golden rules to their production and extraction technologies.

[0:43:01]

Now, I have a message about coal. I call coal is a forgotten fuel. Why forgotten fuel? I will explain

in a minute. Because when you go to meetings, especially in the OECD countries, in Europe, in U.S., in Japan, you barely hear a word of coal. We heard a lot about gas, renewables, wind, solar, oil, et cetera. But when you look at the numbers, there is a big – (inaudible) – between what is happening again, once again, in light of what we are discussing.

What I mean is that, if you look at the last 10 years – it's not a forecast, this is the data – what happened in the last 10 years, if you add how much natural gas we used worldwide last 10 years, on top of that all oil, on top of that all renewables – hydro, solar, wind, geothermal, biofuels and everything – on top of that nuclear power, if you add all of them, this is more or less equal to coming only from coal.

So it means almost half of the growth in the global energy use came from coal, and the other half all the others put together. Yet, we are not, again, taking coal as a major topic in our discussions. What are we going to do with coal?

Coal helped hundreds of millions of people to take them out of poverty in China and India. Yet as we know, it's a major source of CO2 emissions. And there's a reality on the table, so we cannot close our eyes. So we thought we should bring it. And we made it – every year we focus on a fuel in that. And this year, it was coal in the World Energy Outlook. We thought we should bring it to the attention of the international policymakers.

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Now, nuclear power. I mentioned to you that the nuclear power, currently, countries, the main countries who are pushing nuclear power, who have major plans for nuclear power, go ahead, as they said so. However, there is other group, which is like Germany, Switzerland, they changed their policies. And most sensitively, there is a third group who are discussing the future of nuclear power now.

For example, France, where I live, in France, we have the presidential campaign next year. And it is one of the two hottest topics in the presidential campaign. There are two major, how you say, candidates, and every day, one says this about nuclear, the other one says this about nuclear power plant and its future. And France, as you know, a major nuclear country.

Japan – there is a huge discussion in Japan about the future of nuclear power.

[0:46:13]

So what we have done is we said, since there is a debate about the future of nuclear power, we said, what happens if we go to a world where we see much less nuclear power than we all think today? And so (we build a ?) so-called (lower ?) nuclear case, which assumes no new nuclear power plants in the OECD countries in the Western world, and in the emerging countries only half of what they say they will do. What are the implications of that?

Implications are very grave. It will affect everything. The gap from nuclear power will be filled by three fuels: renewables, coal and natural gas, depending on which country you are, depending on how rich you are and how poor you are. But three of them will benefit from that. And we see that, as a result of this, global coal demand will increase, global natural-gas demand will increase, and CO2 emissions will increase.

[0:47:36]

With the renewables, nuclear, in terms of using them, no problem in terms of CO2 emissions. They are both CO2 free. However, in terms of coal compared to nuclear, it is going to (bring ?) CO2 emissions. And natural gas – natural gas, yes, emits less than coal, but it is not completely innocent. It does emit CO2 emissions, natural gas, compared to nuclear power.

So therefore, a lot of nuclear means implications for energy security, because you will have, as you have very little nuclear in the energy mix, energy basket, you will have less eggs in the basket, less diversification; therefore, bad news for energy security, bad news for the economics because of the increasing cost of coal and natural gas, and finally bad news for the CO2 emissions.

And this is, of course, this is globally. And in the countries which heavily rely on nuclear power, the results are much more pronounced.

Once again, this is, of course, about – up to governments to decide which technology they'll go and so on. It is one of the governments' tasks to listen to the voice of their citizens. This is completely understandable. But as IEA, what we have done to show in the World Energy Outlook what are the consequences of a lower nuclear future, and wanted to share this with the, again, policymakers.

I mentioned renewables. And in terms of renewables, there's a strong growth, and the growth is mainly as a result of government supports. And today, according to our analysis in the World Energy Outlook, \$66 billion subsidies in renewables and set to increase substantially.

And I can tell you that in many countries renewable subsidies are a very hot topic because of the financial crisis that the governments are dealing with. On one hand, you have major deficits; on the other hand, you are giving subsidies to a rather new industry, with the hopes that they are going to grow and make a big contribution to the future energy supply.

[0:50:05]

So short, very strong needs versus structured, long-term imperatives. And I can tell you that we are traveling the world, since 9th of November. Many governments are giving a second thought to continuing to support the renewables at the level that they are doing now. And this would have major implications if they do so because renewable industry is still a very young industry compared to oil and gas or nuclear industry. If they get a strong hit, that industry, it will be very difficult for them to get back and maintain the position they have now. And this may have major consequences.

And again, advice to governments, we understand your situation. But please, try to think long term as renewables are very important areas both to climate change and energy-security issues.

[0:51:12]

Every year, we focus in the World Energy Outlook on a country and make an in-depth analysis, both the domestic situation and energy used domestically and also energy used – energy production and energy exports, if it's an exporting country. And this year we have chosen Russia which we believe is and will stay a cornerstone of the global energy system for many years to come. And we have carried out this work together or with the help, with the support of the Russian government and Russian utilities.

We made a major, one-day seminar in Moscow with the Russian government and many IEA government representatives and several industry players to talk about how we should analyze Russia. What do they want – the Russian governments, IEA governments and others? And we were (very glad ?) to have

the high-level Russian representatives there. Mr. Medvedev of Gazprom gave a keynote speech, and also Mr. Jon Elkind who is the vice chair of government import gave a keynote speech.

[0:52:29]

And we learned a lot from Russians about their preoccupations, their anxieties and their views. And we have a major work there. You may want to look at it. But I want to highlight two messages that I thought are important.

One is on the efficiency front. We look at the entire Russian energy-using infrastructure – the efficiency of the refrigerators, power plants, TV sets, factories and so on – and we have found out that when we look at the countries, the list of the countries, Russia efficiency performance is poorer than even some of the least-developed countries in Africa. And at the same time, there is an intention for the government to improve this.

And our analysis in that front with the Russians show that if Russia would bring the energy-efficiency level of these TV sets, power plants and so on to the level of the OECD countries, not the golden standards, but if it brings there, then it will – Russia will save energy which is equal to one new cache.

Or on the natural-gas front, as you know, Russia is the most important gas exporter today, Russia would save natural gas which is equal to 180 bcm, which is equal to the current gas exports of Russia. So it means Russia would double its gas exports without increasing the production one millimeter – just doubling it by using energy more efficiently. And this plays a very significant role, but we think the Russian government is making good efforts. But this is far behind making the most out of this.

The second one is Russia and its exports. Today for Russia, energy export – (inaudible) – are very important; from our perspective, too important for the economy, relying too much on the energy exports. And when we look at the exports from Russia, there is one major client today, which is Europe, almost two-thirds.

[0:54:54]

And for Europe, Russia is very important; for Russia, Europe is very important. One client, one server. But the picture is changing significantly. China is emerging as a new client to Russian energy exports. So therefore, instead of having one very important client, Russia will have two important clients. And of course, this will have – this will be good news, I guess, for any seller, not to have one only client, but having two clients. And I'm sure, as in other countries, Russia will take this message in a cheerful way because they have two clients. And for Europe, it is not the best news, I would say, given all the pressures that Europe has.

So I am coming to the end of my presentation on the climate change. Yes, we are starting the Durban meeting today – (inaudible) – negotiations. And in terms of negotiations, there is one argument that emerging countries are always underlining, say that when you look at responsibilities, you don't look at today only, you look at the historical responsibilities.

[0:56:25]

You, rich countries, yes, Europe, you have been using a lot of coal, oil, gas, and putting a lot of carbon in the atmosphere since 100 years, as you see in this picture. And now, we have very little

responsibility there, and now you are telling us that we should have the same responsibility. This is not fair, by emerging countries, led by China.

And to be honest with you, when you look at this picture, they have a point, definitely they have a point. But it is changing. When we look at the next few years, we see that the Chinese historical emissions are overtaking Europe very soon, around 2015, and coming very close to the United States. And I can tell you that our China numbers may well be on the conservative side here.

[0:57:20]

So therefore, from a cumulative-emissions-perspective point of view, the argument coming from China and others may not be as strong as today and the next years to come.

India, according to our analysis in the World Energy Outlook, became this year the third-largest emitter, following China and the United States, overtaking Japan and Russia.

On a per-capita basis, another argument, China is overtaking Europe in the next four years, even on a per-capita basis. This is the other argument coming from the developing countries. Don't look at volumes, but look at the per-capita basis, because we are 1 billion people, which is, again, a valid point.

But in our per-capita basis, China is overtaking European Union very soon and OECD.

So what I want to say here is that this is true that the U.S. and Europe has historical responsibilities, but the picture is changing very rapidly that even the historical responsibilities will be redefined again and discussed.

Another point on climate change is about the two degrees. With the current policies in place, the world is perfectly on track to six degrees Celsius increasing the temperature, which is very bad news. And everybody in the school children know that this will have catastrophic implications for all of us.

In the World Energy Outlook, we look at every year where we are, and we are perfectly on track with the six degrees – several years, we put a check next to that. And yet, world leaders have agreed in Copenhagen and we agreed in Cancun that we have to limit the temperature increase two degrees Celsius, which barely brings us to a sustainable trajectory.

So we wanted to look at in the World Energy Outlook, with the current energy infrastructure we have today, how much room, if any, is left to – (inaudible) – the two-degrees trajectory. Because when you build a power plant, it has a lifetime of 60 years, 50, 60 years. When you build a factory, 80 years. And throughout their lifetime, they are going to emit carbon dioxide emissions.

[0:59:58]

So we wanted to see, with the existing infrastructure, how much emissions they are going to emit, and how does it compare with the two-degrees trajectory.

Now, what we understand is, with the current power plants, current factories, current cars, current trucks, we have already 80 percent of the allowed emissions to us in a two-degrees trajectory will be eaten up with the existing power plants, existing cars and existing trucks without building anything, without building anything new. And with the current one, 80 percent.

It is like a – to make it simpler, we are coming to the lunchtime – the doctor gives you a diet, certain amount of calories you can have in one day. And this blue one is the – since we have two Turks here, you eat a very good Turkish baklava – (laughter) – and you have already 80 percent of your allotted calories are eaten up. Only 20 percent for the rest of the day or for the next 25 years.

[1:01:22]

In the context of, if you don't do anything until 2015, 95 percent of the allowed emissions will be locked in. And if you do not do anything until the year 2017, we are going to use all the emissions which are permitted to us, we are going to consume them by the existing power plants, transmission lines, by the cars and everything. So therefore, we will lock in our future, which will be impossible to change, and the door to two degrees will be closed.

But in order – (inaudible) – there are major, huge, new, clean-energy investment framework, you need much earlier to give strong signals to the investors to go forward that way before 2017. And for that, you need regulation such as the good news from Durban or something else or some government policies.

[1:02:28]

My final slide is about something which is at the heart of the World Energy Outlook since 10 years, which we stubbornly push, namely, energy access. Today, according to our numbers, 1.3 billion people, about 20 percent of the global population, they have no access to electricity, they have no electricity, mainly in sub-Saharan Africa and in South Asia, India, Pakistan and Bangladesh.

And it is not only a matter of not to have a light, you do not have – you cannot put the medication of your child in the refrigerator. Very simple. You cannot have access to Internet, to external world. You can't have operation in a hospital. So very simple things, but just to make it understood. And with the current policies, it will continue.

But we are very happy to hear that, as a result of our efforts and efforts of others, secretary-general of the United Nations announced the year 2012 is the energy for all through Rio-plus-20 and start putting the energy on the top of the United Nations agenda. And we hope that it will have today some awareness here.

So ladies and gentlemen, let me finish our presentation by saying to you that we have highlighted many uncertainties. Our executive director mentioned a few of them, I mentioned a couple of them. But there is something which is very certain: Hundreds of millions of people in the world want to have better lives, which is equal to have more energy. And this means energy demand will go high. There will be more energy demanded. And the question is, how are we going to meet that demand? What kind of energies we are going to use?

The good news for U.S. is that, within the U.S., oil security will improve as a result of policies, both on the demand and supply side, put in place in this very country. But worldwide, the bad news, that the production will focus on very single region where the demand will grow very strongly.

[1:04:47]

On the gas front, there will be new options for gas, both on the demand and supply side. However, please don't forget the roadblock issue in terms of the environmental implications.

Coal is the forgotten fuel, as I said. The numbers are there. We don't need to speak more, and there's no need for (connect?). And how we are going to deal with coal is a key issue. We can't close our eyes and just focus on our small, new discoveries here and there, which makes – (inaudible) – global-energy mix, and 50 percent comes from coal alone in the last 10 years. So let's don't please forget that.

The world needs Russian energy. We think Russia is and will stay the cornerstone of the global-energy system as a producer – oil, gas, coal, uranium, even electricity trade – but Russia will need to use less by using energy more efficiently.

[1:05:44]

In terms of climate change, there are some good steps in many countries, in this very country, in China, a lot of steps, good steps in Europe and elsewhere. But compared with the challenge we are facing today and the time pressure, our analysis show that the door to two degrees is closing forever.

So this is my presentation. And thank you very much for your attention.

(Applause.)

MR. VATANSEVER: Thank you very much for a fascinating presentation.

Given the time constraint, I'd like to open it up immediately for questions. OK, please wait for the microphone, and identify yourself, please.

[1:06:38]

Q: Thanks. David Lynch with Bloomberg News. I wonder if you could just say a little bit more about what you see as the implications of the changing U.S. picture in terms of need for oil imports, the changing energy-security picture, both in its implications for global energy markets, and also geopolitics.

MR. VATANSEVER: Let's take a few more questions, maybe two or three more.

Q: Thanks. Marilyn Brown, I teach at the Georgia Institute of Technology, and I use the World Energy Outlook, of course. When do you think that the energy outlook will begin to treat energy efficiency on a par with other energy resources? You've emphasized its importance, and yet you don't portray its contribution in a systematic way. Do you foresee being able to do that in the future?

MR. VATANSEVER: OK. Let's maybe we have one more question. Yes, here, please.

Q: I'm wondering whether you can address the issue of subsidies. It was wonderful that you said, you know, 66 percent – 66 billion (dollars) was for alternative energy, and there's a lot of pressure from governments. But in the parentheses, it was compared with 409 billion (dollars) in fossil fuels. Wondering whether we've had problems in this country addressing that issue, whether you will be addressing that.

And just a quick point on the supplement on the natural gas, that you had. It would be great if there were more representatives of civil society and environmental groups when you put out reports on natural gas, because it was an excellent report, but the environmental issues, I thought, were not given the kind of importance that you brought up now, especially on the water.

[1:08:32]

Thank you.

MR. VATANSEVER: Would you like to start answering? Yes?

MR. BIROL: So the first question is a very important issue. And some of the colleagues who know me, I speak very bold. I will tell you something now. When we made the slides, especially that very slide, I thought – and since 9th of November, traveling within Europe, and our Asia director went to Russia, Japan, China and so on – I thought, when I show that slide, everybody in Europe will jump. I was completely wrong. It went unnoticed.

[1:09:23]

I'm very surprised about this, but this is a – I shouldn't be surprised, because as I said, since long time I am in Europe, and I don't see oil security getting enough attention. But now I think it will get attention through – with our slides, of course, this is just one slide with nice colors and so on. But when the press see this come, I think it will get more attention.

Now, in terms of the global energy markets, global energy markets, I don't think that it will change a lot in terms of the markets because there is a new consumer, new importer emerging, as like – (inaudible) – to China. But in terms of geopolitics, which is definitely not entirely in my professional mandate, but I can tell you that, while I believe the U.S. will keep an eye on the international oil stability and the security with the imports (helping ?) very quickly, I've looked surprised if the other countries, such as Europe and the others, would need to keep an eye more on the international oil security and beyond. There will be more things on their shoulders in the next years to come.

[1:10:47]

But this is a very important issue. And as I said, I was very surprised that it was not picked up, neither by media – (inaudible) – or something, but except for not much attention – (inaudible) – one of the major findings.

Energy efficiency, it is a very crucial issue, and you will be happy to hear that – (inaudible) – every year, we focus on one fuel, one issue in the World Energy Outlook. Next year, our focus will be on energy efficiency. So while it is not taking place, even though, as I said, it's on the top of the agenda of every government. But when you look at the numbers, there is a big – (inaudible) – there, a contradiction. So we will look at it and what are the hurdles behind it. And we – (inaudible) – take energy efficiency very seriously.

Subsidies, yes, subsidies for renewables are \$66 billion. For the fossil fuels, it is about \$409 billion for the fossil-fuel consumption, for coal, oil and natural gas. And the difference is, when you use more renewables, you have to adjust to climate change. And when you use more fossil fuels, you make the things even worse.

So on that part, they go completely different directions. And we have been working for the G20, as was asked to us by our U.S. colleagues during the Pittsburgh summit, and we made the report with other institutions to show that elimination of fossil-fuel subsidies could easily and at one instance help to reduce the CO2 emissions and open the way for the renewable energies.

Because the fossil fuels are already cheap compared to renewables, without subsidies. If you put a

subsidy, it is even cheaper, and it blocks the renewables to compete in a right way. So therefore, we have been pushing for the renewable subsidy and fossil-fuel subsidy phase out. And I can tell you that, to a certain extent, we were successful as the G20 communique put a strong emphasis on that. And we hope that many governments are going in that direction.

[1:13:05]

The recent news coming from a major G20 country with subsidy, among other things. Saudi Arabia definitely supported that hope we have.

MR. VATANSEVER: OK, let's take another round of – (inaudible) – questions. Somebody on the back over there.

Q: (Name inaudible) – from the Brookings Institution. My question concerns about energy efficiency. We know the concept of energy efficiency is very complex, that it's not only about applying technologies, it also requires cooperation between governments, industries and other sectors, and also the coordination between the sectors within the industry.

[1:13:46]

So my question is about, how do you define energy efficiency? And have you proposed a model of energy-efficiency improvements yet? Thank you.

MR. VATANSEVER: OK. Another question.

Q: Dr. Donart. There are many organizations that claim that there is no such thing as clean coal. Could you tell us something about the state of clean-coal technology today?

MR. VATANSEVER: OK, one more question.

Q: This is a follow up to the earlier question about fossil-fuel subsidies. Which are the biggest fossil-fuel subsidies that make up that \$409 billion figure? And which countries are providing them? Thank you.

[1:14:42]

MR. BIROL: OK, thank you. Now, energy-efficiency definitions and how to improve it – (inaudible) – issues. Let's take an example. Russia – I gave an example. How can we make at least 30 percent improvement and bring it to the OECD levels? There are two ways. The first one is, for example, I talked about refrigerators. To put standards for the refrigerators, for the manufacturers, that there should be some specific energy-consumption levels for the refrigerators. The same can apply to cars or TV sets and so on. So standards and norms, these should be established, and these should be used throughout the country.

And the second one is the financial instruments. So if you – if you make the analogy not so cheap, which is the case in Russia today – we're talking about the subsidies, Russia today – then automatically, you give a signal to the consumers to use it without wasting it.

And looking at our lives, if you had a very cheap tie, you can wear it every day without being too – it is going to last – (inaudible) – or not. But if it is a very expensive one, use it only for special occasions.

So if it is very cheap energy, then we use it wasteful – (inaudible) – which is happening in Russia today. So the second one is the price, price and standards, we need a lot of these instruments.

Clean coal – so I would say that clean coal is – (inaudible) – or not, but there are two things here. One, to use the coal more efficiently. For example, in our coal study, you will see, if we were to increase the coal-powered plants' efficiency by 5 percentage points, 5 percent, which is not very difficult, especially the ones which are coming on stream in developing countries, this would save about 8 percent of the CO2 emissions, or this would reduce. This will not make it zero, but this will reduce.

[1:16:59]

The second one is the carbon capture and storage, together with the coal-powered plants. And this is a big hop, seeing the very big coal numbers in the last 10 years. However, it is a hop, which means that currently we cannot say that the CCS is going to have a significant market share in the next years to come. We hope to see so, but in order to see CCS have a significant market share, we have a problem with the economics of it. And in the absence of the carbon price, it is very difficult.

And the second, in terms of technology, we have still some challenges. And third, in terms of regulation, we have not fixed everything. CCS is very, very much needed, but we are not yet there, I can tell you.

In terms of subsidies, about 409 billion (dollars), first of all, half of it is oil, half of it is the rest. And how does this fit with the – (inaudible) – to climate change? Let me tell you one thing that we sometimes forget.

[1:18:11]

When we talk about the CO2 emissions, first, fuel comes to our mind automatically. Just the picture here is coal, which is true, but not exactly true, because coal's share in the total CO2 emissions today, 42 percent, and the oil share is 39 percent, very close. So it is not only important, the specific emission rate of a fuel, but how much we use of that fuel.

So therefore, the reduction of the subsidies in oil, coal and gas, even the oil is the half, will help – (inaudible) – to reduce the CO2 emissions. Which countries have the most? Mainly in Middle East countries, China, India and Russia.

[1:19:01]

And let me take this opportunity to give one important finding of our study, at least to me, because as I'm sure as important security, to me, important is not always important for the rest of the world. But something which (bugged ?) my mind a lot. Because many governments say, we have the subsidies in order to protect the poor. I never believed this because I came from, at that time, at least, a developing country, and I saw that it more the medium-income levels who will benefit from it.

We made a study, and we found out that out of this 409 billion U.S. dollar, only 8 percent goes to the 20 percent lowest-income quintile, lowest-income group. Or you have an 80 percent gross of the subsidies goes to medium and higher-income levels, because they don't have access to modern services anyways in a substantial manner. Just to demystify that government policy.

MR. VATANSEVER: OK. Let's have another round, probably three more questions.

Yes, please.

Q: (Name inaudible) – International Petroleum Enterprises. Thank you so much for the wonderful presentation.

You talked about the impact of the 3 percent additional demand for coal in China and the impact that it had on prices. We accept it. You talked about the nuclear problems in Japan, but your data shows that there will be a 70 percent increase in the output of the nuclear energy. We accept it. And then when it comes to gas, we started talking about some of the problems, environmental issues, but those problems, although they are true and valid, but it's limited to unconventional gas.

One major problem that we've had for a long time on the conventional side –

[1:21:04]

MR. VATANSEVER: Could you ask the question now?

Q: – have been the pricing structure of natural gas. In Saudi Arabia for decades, they've been, you know, stocked with 75 cents per mcf. That's a huge imbalance that is really impacting the production, the demand locally, and increasing – sufficient increase in prices over the last few years that is causing a lot of problems.

How do you address that? And shouldn't that be part of the golden era of the gas that you talked about? Thank you.

MR. VATANSEVER: Let's get two more questions.

[1:21:48]

Q: My question is, does IEA have any significant material, magazines or programs to help China, Russia and India to save energy and upgrade to the clean and renewable technologies? I don't think it's a matter of willingness. And I think it's a matter of capabilities. Thank you.

MR. VATANSEVER: OK. We have a hand over there. Yes.

Q: Thank you so much. Victoria Kupchinetsky, Voice of America. You said that the world really needs Russian energy more and more. Europe is a very important client. Already China is becoming a very important client. What about the United States? Do you foresee that in the future the United States will become more dependent on Russian energy, especially considering the changing situation with oil production in the Middle East? Thank you.

[1:22:48]

MR. VATANSEVER: I think we are kind of running short of time. I just would like to add one more question.

The central scenario this year is the new policy scenario. Could you elaborate a little bit where you see the most important differences from the current policy scenario in terms of policy implications?

MR. BIROL: Thank you. So perhaps I can start with that one. So we have in our book, you will see we have three different scenarios, because they are – (inaudible) – and you never know what most of the governments will do.

One of them is, what happens if governments do not change their policies as of 2011? Twenty-five years, no change. It's call the current policy scenario – no change. The second one is our base scenario, we called new policy scenario. It incorporates some of the likely policies that governments are going to put in place, it's already in their mind – efficiency programs, renewable subsidies and so on.

And the third one, which we call the two degrees or 450 ppm scenario, if the governments will go for a very strong climate-change-policy trajectory.

So if you ask me what are the chances of which one is going to be the most likely one, I don't know. But I can tell you that I see the chances to go to two degrees or 450 ppm is fading away, unfortunately.

[1:24:26]

For the governments will never change the policies, they will go ahead as they do, it is something that, for me, it is a horror movie. It will have six degrees temperature increase, and I don't want this to happen. But every year we do this book, we see that we are following that trajectory. But the governments are, at least some governments are putting lot of emphasis to change that trend.

And therefore, I hope that our likely scenario, since the two-degrees scenario will not be the scenario which most likely will not happen very soon, our likely scenario, new policy scenario, which brings us to a three-point-five degrees Celsius increase in temperature, which is still too high according to the scientists, and will need lots of initial measures in order for us to adapt to the new world.

[1:25:24]

In terms of gas, now, the pricing is an issue, definitely an issue. But the markets are somehow addressing this issue. How it is currently in Europe, about 75 percent of the contracts are based on oil indexation. And when the oil prices go up, the prices go up as well at the same time.

But getting a lot of gas from different countries, a lot of – (inaudible) – makes the hands of the importing countries much stronger vis-a-vis the exporting countries, to put more elements of market, market terms in the new, long-term gas contracts.

We have seen three examples already in Europe, one in Germany, one in Italy and one in Turkey, that they have successfully negotiated with the major gas-exporting company, and improved the terms and conditions. It is, as I say, in the beginning, it was a present from the United States, deliberate or not. But this is definitely – I was joking – about half serious, half joke – it helped. And I guess, if the prices moderates the long-term contracts, it will even help further to have a golden age of gas.

[1:26:52]

Are we having China, India and Russia with the programs? Yes, we have. At the IEA, we have some implementing agreements, different technologies we have in our countries. We share those experiences together with those countries, and definitely all those three countries are engaged.

And we had the ministerial meeting last March in Paris. And in addition to our ministers, we had all the ministers coming from these countries as well present, and we share our experiences with them.

And also, in the context of Clean Energy Ministerial Meeting, to which IEA is contributing, all these three countries will be there – (inaudible) – to share experiences with them.

U.S., depending on Russia in terms of oil or gas, I do not think so. I do not think so. It will be a major surprise if U.S. will be depending on Russian oil and gas exports. But another surprise may be to see some U.S. gas coming to Europe sometimes. Would be a good surprise, which would put – again, makes the hands of the oil and gas importing countries much more stronger. If we were to manage to, for example, get gas from United States about \$8 to Europe, it will be definitely beneficial thing for European gas importers.

MR. VATANSEVER: Thank you very much. I think we are coming close to the end of our presentation.

And I should say that this was a fascinating presentation for all of us. And every year, the World Energy Outlook is perhaps one of the most exciting reports awaited by industry insiders and experts. And this year, it does come with a very important warning, especially for those that are believers in climate change. The warning is that the door is closing, and the costs of inaction are increasing.

And it is worth actually remembering JFK's words at that point when he said, there are risks and costs to action, but they are far less than the long-range risks and costs of comfortable inaction. And this seems to be the case with the global fight about global warming.

[1:29:22]

With this, we have come to the end of our session. I'd like to thank our speakers for their presentations and for their fascinating speeches. And I would like to thank you for all of you for coming. We will have this event on our website shortly. Thank you very much.

(Applause.)

(END)