

Brussels Forum

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New Visions for Energy Transition: Balancing Energy Security, Climate Change, and Costs

Video Clip: When Brussels Forum began ten years ago, no one imagined that Shell Gas and Oil would make the United States a foremost energy producer. And the European Union had yet to embark on its ambitious 2020 goals to reduce greenhouse gas emissions and expand renewable energy. This year presents high stakes for the energy sector. The 2015 climate change summit in Paris is a chance to achieve what the 2009 Copenhagen meeting did not, a true agreement on climate change. This year has also heralded a new energy vision for the EU. By launching an energy union, the EU seeks to connect energy infrastructure, speak with a single voice internationally, and stimulate energy innovation. How feasible is it for the EU and its neighborhood to cut dependence on energy imports from Russia? Will plentiful and inexpensive oil and gas resources undermine climate change ambitions? With limited political capital, what is the right balance between energy security and climate change this year?

Unidentified Female: Ladies and gentlemen. Ladies and gentlemen, please welcome Senior Vice President for Programs at GMF, Mr. Ivan Vejvoda.

Mr. Ivan Vejvoda: Welcome. Welcome. Hello? Are we okay? Welcome back from the coffee break. Welcome to this next session. As you've seen discussions on energy policy, whether it's about renewables, security, or energy independence linked to the geopolitics has been a huge issue and this is the panel that will tackle that issue.

We at GMF have been working on these programs over the past five to six years and we have a very robust energy programming at GMF throughout our network, both in D.C. and in our European offices that bring together, like here, government officials, business leaders, and people working in think tanks and on the analysis. And I'm very happy and honored to introduce the moderator of our session: Nina dos Santos, who's coming back for the third time here. She is the World Business Anchor at CNN. Nina, please.

Ms. Nina dos Santos: Ivan, thank you very much. Thanks. Ladies and gentlemen, thank you very much for having me for a third year in a row. I'm going to introduce our speakers as they take their seats. I'm sure you're aware of a number of these individuals here.

Starting out with the Hon. Borge Brende, the Minister of Foreign Affairs for Norway. We also have the Hon. Miguel Arias Canete, the commissioner for climate action and energy for the European Union. From the private sector we have Mr. Dev Sanyal, executive vice president, strategy and regions at BP with specific

focus on places like Europe and also Asia. And J. Robinson West who, as I'm sure all of you in the room know, has been involved with the German Marshal Fund for many of the years and a key part of this Brussels Forum debate that is now celebrating its 10th year today.

So let me start out by talking about the broad topic that we're going to be here to discuss. I'm sure all of you in the room want to examine various issues here, various specific parts of the energy debate but, of course, we can't ignore the fact that the oil price is extremely low. That gives you sleepless nights or less troubled nights, depending on which side of the supply and demand dynamic you are at. We're going to examine that. We're also going to talk about the issue of energy security, which is paramount for this particular region. Maybe there's some lessons that we can gain from the United States. And climate change, because obviously with the oil price and gas prices being so low, does that suck the impetus from countries, from companies, to impose the kind of regulations that perhaps we need to protect the planet for future generations to come?

So let me start out first by introducing you. Dev, you're from the private sector. The oil price is so low, BP's obviously a huge oil producer, how is this changing the landscape for energy today?

Mr. Dev Sanyal: Well, I think the way it's changing the landscape is the way people are responding to their thesis about what's going to happen in the future. If

you think about the world of oil from the LUV index, L-U-V, there are some who believe there's been a secular shift down. In other words, the price of oil has gotten rebased forever. There are others who believe that this is a 'V'. In other words, there will be a sharp recovery. And there are others who have a perspective which is more about a flat 'U'. In other words, it's cyclical but it's going to recover over time.

Based on your thesis of what's going to happen, people are responding so there are some companies that are clearly recalibrating but keeping their options open. Other companies are working through cycles and others are taking a different view in terms of the investment regime.

Ms. Nina dos Santos: How is it changing the conversations that a company like BP and all big oil companies have with local and national governments here because, obviously, presumably that is changing significantly because of this.

Mr. Dev Sanyal: Our key Nina, is to do two things. In the short term how do you manage your financial framework so that you've got financial resilience to start over if you will, the thesis that you may have in terms of the oil price recovery or the same time maintaining options for the future. So the conversations have been around how do you manage the books of the short term. How do you drive deflation in your costs base (inaudible) while at the same time retaining options for the future.

Ms. Nina de Santos: Robin, I want to come to you because obviously the price of oil is being felt particularly hardly in the United States. A number of shale oil gas producers now having to ramp down production, shed staff to shut down out right because the economics of it just don't work at this level. Where do you think the shale oil industry is going, do you think that the the low oil price at the moment is a bit of flash of in the pan because shale oil will come off line eventually, or do you think that it is 'L' or 'U' or 'V' shaped curved that you're talking about?

Mr. Robin West: Well, I think it's important to understand that the shale oil bloom was undertaken by entrepreneurs. It was by small companies that didn't have the big cost structures of major oil companies, and they made these breakthroughs first in natural gas then in oil. And what's happened now is the price of oil has collapsed. Their cost structure has gone down as well too. OPEC is trying to squeeze out this North American production, but it's proving to be a lot tougher than they thought, because frankly these very entrepreneurial oil executives they're bringing cost down and people thought shale wouldn't work at 60 dollars, it works at 60. They thought it wouldn't work at 50, it works at 50. They're keeping it coming down so, I don't think this production is going to be shaken out anytime soon.

Ms. Nina dos Santos: I'll talk to you Mr. Borge Brende, how is Norway being affected by the current low oil price?

Mr. Borge Brende: Now we decided 15, 16 years ago to allocate all the running revenues from the oil and gas sector into our [Serenibel?] fund. And then we used the real interest of the [Serenibel?] fund can be allocated in our estate (inaudible). So the [Serenibel?] fund is now a one thousand billion U.S. dollars. The largest one in the world. Invested earning an average earning 1.5 percent of all globally listed companies. So in medium long term if the oil price and gas price stay low we will have slower growth in the [Serenibel?] fund, but it has no immediate effect on the running revenues for the government.

Ms. Nina dos Santos: Let's broaden things out. But, before I do though, I just want to remind everybody out there you can get into the conversation. I want to make this as interactive as possible. I'm armed with my tweeter handle the hashtag Brussels Forum 10 of course, and don't forget that you can of course use your BF connect app to send in questions. I don't have any yet, but as we start to get them I'll start to feed them in. We should talk about energy security here and Commissioner Canete, I want to come to you to ask you about how significant, the difficulties that this region is having with Russia is because of your particular portfolio trying to enhance Europe's energy security profile for the next 10, 12 years and also include climate change into that debate.

The Hon. Miguel Arias Canete: It's clear that the European Union is highly dependent on impulse of energy. We import 4 hundred million Euro a year, 1 billion a day and in some cases, mainly in gas, there are some countries where very highly (inaudible) apply. In that case big problems and situations like the ones we are seeing these days. So that is why we have put in action an energy union project, which one of his main pillars is energy security.

How are we dealing with it? First of all, we did a stress test in 2014 to acknowledge the real situation that make up (inaudible) to situations of crisis. And that has led us to have reverse flows in the gas pipes, and the possibility of interconnect all the countries in one sense on the opposite sense. That's this year for country Ukraine is buying more gas from European sources than from Western sources, and that diminishes the density of the problem, it doesn't eliminate fully.

On the other side we want to have different (inaudible) of supply. That's why we are supportive the southern corridor in giving all the political and technical economical support to the bill of this corridor and have different supplies. In this case it is (inaudible) by them, but in the future from another country.

Ms. Nina dos Santos: But the southern corridor will not make up the huge amount, Europe needs something like 500 billion cubic meters of gas every single year. One third of its gas is imported from Russia from a fragmented network which lands Russia to have bilateral agreements with different EU countries. How

can you surmount that? The southern corridor is not going to help counter that entirely, is it?

The Hon. Miguel Arias Canete: It's initial steps and it will develop following it. Energy strategies are long term strategies. This is already brought a step forward. I mean, imagine if we connect with (inaudible) if the situation in Iraq improves with Iran, and the situation in the Mediterranean improves, there will be many possibilities. That's why we are doing the southern corridor, but also we are working in Bulgaria with interconnectors. Including the connector Greece, Bulgaria (inaudible), Bulgaria-Servia developing the capacity of having or most closely. And we want to develop strategic energy partnership with other countries like (inaudible) and to connect also by the Siberian peninsula with the central European network through France. So there are many possibilities to have different security of supply, different suppliers and different roots.

Ms. Nina dos Santos: These are very big projects and of course they will rely on huge amounts of infrastructure money put into this. This comes at a time when obviously as I was saying before, the oil and gas prices are currently low so it's hard for private and public sector stake holders to commit the money to those funds. Are you finding that it's difficult having the visibility here to commit money to those kind of projects?

The Hon. Miguel Arias Canete: No, we have established the Juncker plan, the (inaudible) fund, and there are many demands for financial for projects. So money would not be the problem. (inaudible) must be a market case so that private investors come to them, but when there is a case of European interest we have the connecting Europe facility to make (inaudible) so that it breaks even. So we work on both sides, private investors and then support the European budget. In those cases, there is a big European interest in development of singular infrastructure.

MS. Nina de Santos: The reason why I'm mentioning this is Borge Brende of Norway famously had to deal with Lithuania and Estonia which changed their energy profile quite significantly helping them to diversify themselves away from Russian gas. How successful has that been, and can Norway be perhaps the (inaudible) to energy issues and energy security issues that the EU is facing today?

The Hon. Borge Brende: I think we can be a contributor and we are already. Russia is responsible for 30 percent of the gas that is consumed in the EU, Norway 20 percent. We can step up further in the years to come. Making natural gas a bridge from a fossil fuel base society to a more low carbon economy. That is the wish of the European Union. And we know that if natural gas can come instead of coal it emits half of what coal does. On the LNG for Lithuania, this has been an important step forward also for diversifying their energy situation. And I think with

Norway contributing 20 percent of the gas to Europe we--I think a political risk related to (inaudible) export is lower than some other actors in the market.

Also as a reflection, you know, with the big picture we are now seeing with energy security and diversification really on the agenda, and it should be on the agenda I think that President Putin has also in this field made cardinal mistake. Three or four years ago was energy security on the top of the agenda of the European Union, everyone in Europe is now looking at not being in the situation in 10 years were you have to rely so much on one distributor, and even during the Cold War, and we know this because also have been a distributor for some years from Norway's side. There was not created this kind of insecurity and also the willingness to use gas in the political complex, and this is not very strategic.

Ms. Nina de Santos: I'm slightly skeptical about that point, because I just think you remember covering as a journalist the 2007, 2005 issues when the pipelines almost shut off in countries like Belarus, Ukraine, and energy security came right to the fall of policy makers minds here in Brussels and then it fell off the agenda a little bit. So Commissioner Canete, how can we make sure that, that isn't going to happen in three or four years from now?

The Hon. Miguel Arias Canete: First of all, because we have developed energy union project which one of its main pillars is energy security, and we are going to enforce it. So the European Counsel yesterday, also in his conclusions

agreed with bill of the commission, the framework study of the commission, and instructed the commission to develop it. So we are willing to work in diversification of routes, suppliers. We are going to develop a new (inaudible) gas strategy that (inaudible) union that we haven't had ever to see one of the missing links and how we can improve it. In view mainly because we are discussing we are the state of (inaudible), and there will be possibility of additional exports in the future and improvements in the prices systems. So we are going to prepare us not only with natural gas and traditional pipelines but also with (inaudible) strategy in developing additional haps. We want to develop a Mediterranean Hap with social competitive.

Ms. Nina de Santos: And of course that'll take quite a number of years before its up and running, but it's still commendable as a project.

The Hon. Miguel Arias Canete: Sooner than later.

Nina de Santos: Let me start bringing in questions here from the audience who have started to come through here on the BF Connect and Twitter platforms. And again this, just goes back to the issue, Mr. [Mersa?] of Russia. So here's the question, which feeds into what we were talking about before. What real effect does sanctions have on the Russian energy sector and does Russia still have energy as a weapon? So, I'd like to ask both of you to answer that. First.

The Hon. Borge Brende: I think Norway is one of the largest energy exporters in the world that's not particularly hit by it, but--and being the 6th largest producer of hydro, but to your question or to the annexation of Crimea and also the destabilization and break of international law in Damascus, I don't think this is easily forgotten. And I don't think it should be easily forgotten. The security landscape is different from what it was and I think is every nation's responsibility to also make sure that energy security is a very important of your policy and you should diversify. So if this is a unique opportunity to look at different ways of diversifying. All of Russia, if and (inaudible) is energy tool as part of their way of making their influence in Europe and also in the (inaudible). I would say that with the economy that is now contracting 4 to 5 percent, and in a situation where also there are fundamental challenges in the Russian society, and with differential of the (inaudible) I think they are more focus now on getting paid for energy than to the export.

Ms. Nina de Santos: Funny an EU perspective Commissioner Canete, is Russia losing a little bit of its might when it comes to using energy as a foreign policy tool because obviously as a Minister Borge Brende was just saying before there, they have to be nice to the customer because the economy is really doing badly.

The Hon. Miguel Arias Canete: We will do all that's needed so that energy is not used as a policy tool. It will diversify roots, suppliers, sources everything we do. But on the other side Russia will be a supplier of European Union in the future, and when the conditions are right we will have to restart the energy dialogue with Russia on market conditions with transparency of contracts on a different basis. Respecting the European laws but we will have--they will have to be partners in the future, but market partners.

Nina de Santos: BP's obviously big in Russia, you've had your trials and tribulations with TNKBP in Russia. How significant is Russia as a market for BP, obviously, its huge from an oil importancy[sic] perspective but are you finding that is difficult doing business there?

Mr. Dev Sanyel: So Russia, in perspective, is the world's largest hydrocarbon province, and one of the, I guess debates, in the last few years has been around NG independence of some parts of the world, like United States. I would actually argue that energy interdependence is the narrative of the day of the current day, and will be the narrative for the future. Because the reality is, four countries hold the resources, 50 percent of the resources, in oil, and 50 percent of the resources in gas.

So, ensuring that there is, if you will, the trading relationships that sustain energy security is incredibly important.

Russia is important in the context of what it provides in terms of energy security to many parts of the world. Obviously Europe is a very important part of it, given the fact that, as you said, 30 percent of imports are from Russia. BP has had a very long-standing presence in Russia. It's been a very successful presence. We now have a shareholding, a 19.75 percent shareholding in gross amount.

And you know, at the current time, which we are looking at, the key is to make sure that there is a flow of resources from resource-holders to markets. In other words, the molecules have to get to ultimately the consumers.

Ms. Nina dos Santos: And how is the implementation and ratcheting up of sanctions against Russia from the EU, how is that affecting your relationship with Russia as a European company doing business out there, or does it not?

Mr. Dev Sanyal: Well, we are continuing to do business in Russia with the context of the very specifically directed sanctions. And Russia is continuing to be a very important source of energy security for Europe.

Ms. Nina dos Santos: I want to ask you, Robin, how--from a U.S. perspective, and also just the GMF perspective as well, and somebody's who's been in U.S. government, how concerned are you about the current rhetoric between Russia and the EU, and the concerns about energy security, and this region's over-dependence, I might say, on Russian gas?

Mr. Robin West: In Washington, obviously, there's a lot of concern of European dependence on Russia, and I think there's a lot of support for an effort to create a new energy union, and to diversify. I think one of the really very serious questions is that Russia is dead-set is a very important province to the world markets. And how long are sanctions going to go on? How will a transition be managed to some new structure? And the outcome isn't clear. But it's--there is a real worry that, again, depending on your price--your view of the world, we could be a "V" situation, where prices could collapse, and then investment doesn't take place. Because of low prices, demand picks up. And then the price spikes again.

In that case, we're going to need all the oil we can get. And we're going to need Russia. Russia's very important. So, isolating Russia long-term is a very bad idea.

Ms. Nina dos Santos: Do you think that's where we're going?

Mr. Robin West: I think there's a risk of that. But it's partly up to--certainly Mr. Putin has a lot to do with that.

Ms. Nina dos Santos: What about diversifying Europe's energy and gas stream from other countries? For instance, Libya was a big producer of hydrocarbons and now obviously that's a country that's in turmoil. Some of the traditional energy partners, in terms of sort of where the supply was coming from,

are now having a really difficult time in off-line as well. Is that exacerbating the situation, would you say?

Mr. Robin West: Well, one of the things that happened--one of the things that kept the oil price from going to \$150.00 a barrel, or some very high price, in the last year, 18 months, was when Libya went down, we lost several million barrels a day production there. They're problems in Nigeria. There are a number of producing countries. It was just a time when America filled that gap. And now, the markets are fully serviced.

But I think that, I mean, for example, the elections coming up in Nigeria. If those elections go poorly, there is a potential for instability, if not civil war. That could be a huge interruption of supply.

I mean, if there's one lesson I've learned in this business is it's not a predictable business. I mean, I've made a pretty good living trying to predict it, and all I can tell you, it is not very predictable.

Ms. Nina dos Santos: Very wise words. Just coming back to you before I leave the issue of energy security for Europe. Commissioner Canete, I must ask you about, before we were talking about the southern corridor and its importance for Europe's diversification of energy. To South Stream Project, though, by the Russians, seems to be over. How is that changing things?

The Hon. Miguel Arias Canete: Well, the rebellion(ph) was considered that building South Stream didn't increase our security of supply. We would be dependent on the same provider. So that hasn't changed our policies at all.

The Russians have told us that they would put a--the gas in the future if they build it. It was up to the repairs to build new big pipelines. We are not doing so at the moment. We are developing interconnections in Southeastern Europe. There was, I told you, in Bulgaria, in trying to develop this southern corridor.

That's what we are doing. We are going to--not going to change. Then there's the gas in Turkey is the possibilities up to collaborate, but okay. But that doesn't change our problem. Our problem is dependency on single suppliers and our problem is using energy as a political tool. And we have to prevent that in the future. And we will work in that direction.

Ms. Nina dos Santos: And Dev, I want to ask you, from a private oil sector point of view, BP's actually done some research that says that this particular block will be relying on foreign energy sources, currently gets about 53 percent of its energy imported from elsewhere, but for 2/3 of its energy needs by the year 2035, I think it is, according to your own research. How much should people be worried about that, especially considering what the minister was saying about--the commissioner was saying, excuse me, about trying to diversify energy supplies. Of course, we won't get to that kind of scenario.

Mr. Dev Sanyal: So we take a perspective on this, Nina. Europe today consumes around 15 percent of the world oil demand. And in terms of gas, it's around 18 percent. Europe today has around .4 percent of the reserves for oil, and .8 for gas.

So the reality is that Europe will need to be very much integrated and has been for many, many decades now, integrated in the global trading system. It again goes back to what I said earlier. It is critical to think about energy as a global commodity. It's critical to think about how we lubricate that interdependence, rather than talk about rather (inaudible) independence point of view.

Ms. Nina dos Santos: And if the world is so interconnected, we, of course, can't just talk about the European perspective. We need to talk about the United States. The other side of the planet, what are going to be the main pressure points here? If shale gas does eventually come back online, the price comes back up, from a US perspective, what happened to peak oil? Where do we go from here? And what do you think for the next 10 years?

Mr. Robin West: Well, there are a couple of questions you asked there.

Ms. Nina dos Santos: Yeah.

Mr. Robin West: The first is that in the United States when we think of energy security, given the oil shock of '73-'74, we talk about oil. In Europe, energy security is natural gas. So we have a very different perspective.

The second thing is, I think, that in terms of oil, which was a big trauma, that the United States will never be energy-independent. It's more secure than it was before, but as Dev pointed out, there is a global system. And oil is a fungible commodity traded globally. Natural gas is completely different.

The United States is utterly independent in natural gas. We have over 100-year supply. Gas is priced differently than oil. And it's much cheaper in the United States. So the perspective of the United States is it's radically different than it was. We've shifted from scarcity to abundance. But I think when it particularly comes to oil, people should take a deep breath. We've gone--our imports have gone from 60 percent to 30 percent. We're still importing. We're still very much part of the global system.

Now in the question of peak oil, one of the things is that people said the world is running out of oil. The world will never run out of oil. The world may run out of cheap oil. But what happened was, and what usually happens, and it happens in each high-price spike, is there's more investment in technology. People assume technology is static. It is not static. And there are constant breakthroughs.

And so it's dynamic, but again, it's driven by market forces.

Ms. Nina dos Santos: Are you investing in technology in Norway at a time like this when obviously the gas and oil prices are so low?

The Hon. Borge Brende: It's not a (inaudible) investing, it's the companies--

(crosstalk)

Ms. Nina dos Santos: Of course, yeah, it is a country.

The Hon. Borge Brende: I think a lot of companies do have medium, long-term reasons for this. We know that, for example, probably 20 percent of the undiscovered oil and gas resources are in the Arctic. But the break-even is quite high, especially with this kind of oil prices that we are seeing now. But you know, fields that were extremely expensive only a decade ago is today have a break-even of 30, 40, 50 US dollars. So the technology is a driving factor. And, there is a lot of important decisions going to be taken also in the coming year.

What we saw from the OSD report on the global economic outlook on Wednesday is that due to lower oil and gas prices, we will see 1 percent extra economic growth this year. And in the one or two years, this will lead, of course, to increased demand. So, now we are in the situation where we have a discussion about the demand and supply related to the oil prices. But you know, with 1.3 billion people not having even access to basic electricity, in long-term, the demand for energy globally will increase 30, 40 percent by 2030 probably.

Ms. Nina dos Santos: I want to ask you, Dev, one of two questions, just sort of feeding off of that. If the oil price is so low, BP's already announced massive cuts for its North Sea Oil operations. It's expensive to consider drilling at a time like this presumably. And also, at the same time, the European Union's new energy

union that's going to be created, it's not necessarily on the oil side, more on the electricity side, it will hopefully perhaps reduce prices for customers. So are you foreseeing a sort of price issue when it comes to investing in oil and gas to get it out of the ground now because it may not be worth as much later on?

Mr. Dev Sanyal: I think, just to go back to the sort of peak oil idea, this idea was very much fashionable when I joined the industry 25 years ago. I think there's a great geologist by the name of Parke Dickey who once said when we thought we were running out of oil, we discovered we were running out of ideas.

So when I joined the industry 25 years ago, deep water was 300 meters. Today, deep water is 3,000 meters. We've looked at sort of energy efficiency over that period. We've also seen greater recovery rates in that period. And that trend will continue. That's just the nature of innovation, and the nature of technology being deployed at scale.

I think it is very, very hard to say that the prices will be X or Y. One has to sort of, I think, have the flexibility to deal with a range of scenarios. Which is why it is important to do two things as I said in the very beginning. To have a resilient financial framework to sort of see through that cycle, but at the same time, to have a very clear line of sight around the projects that you need to execute, so you're not chopping and changing as you're working through those projects.

My own sort of view is that the industry has been very, very capable of managing the (inaudible) because the reality is, when the price of oil, some people forget this, when it's \$9.62 in 1998, I remember that time very well, as do you, Robin, the reality is the industry had sort of returns of around 10-15 percent. When the price went to \$110.00, the returns of industry were between 10-15 percent.

So things calibrate for the right structure. I think that's important to recognize.

Ms. Nina dos Santos: Right. Now, I'm going to open up the floor to questions. I'm aware that we haven't yet started the debate on climate change. So if anybody wants to kick that off, I'm just going to see whether there's a microphone in the room so we have--one question for the gentleman in the front. I'm going to take three questions at a time. So. These two.

Unidentified Man: First off I would like stay with oil price for a moment, since you all said convincingly that we have so many fields where you can produce oil at a price of 40, \$50.00 and if it's going to 70, 80, there will be a lot. Why should in the next decade the oil price rise at any time again over \$100.00?

Ms. Nina dos Santos: Dev, why should the oil price at any point go back up \$100.00?

Mr. Dev Sanyal: I think Paul Samuelson said, "If you forecast, forecast often." So, I don't know what the price will be, but I think the important factor to

consider is that today, fundamentals are being priced to oil. World peace is being priced into oil. If those factors change, then the prices will change. As we've seen, when prices go up, demand destruction becomes a narrative that changes the price set. And we saw that in August of 2008 when the prices went up to \$147.00.

So I think, you know, ultimately, it's going to be fundamentals and it's going to be a sentiment that's going to drive where the market is. You know, this idea that around the edges people are doing things to the price of oil, I think has been disproven. Fundamentals ultimately price to the oil regime.

Ms. Nina dos Santos: Let me take another question. One at the front. I'll take these two together if you don't mind. From the lady there and then the lady afterwards. Thanks.

Ms. Nicky Devel: My name is Nicky Devel. I'm a former member of the European Parliament. I was in the energy committee for five years. And my question is to the Commissioner. Security of supply, is it only supplies from producers? Do we exclude exploration and exploitation of Europe's indigenous resources, not only on energy, but rare earth as well? And this question mostly to a question to all the gentlemen in the panel, how realistically do you see Europe producing cell gas, let's say, in U.K. and Poland. This scenario is out. We don't see it anymore. And how important do you see the deposits of gas? That they have been discovered in the Mediterranean, Israel is already exporting? Thank you.

Ms. Nina dos Santos: Thank you very much. And then the next question?

Sonali Thrombelvin (ph): Sonali Thrombelvin (ph). My question is also to Commissioner Canete. It is well known that in 2009 Southeast Europe was one of the most hit with the crisis. The energy community, obviously, in Vienna is trying to do a lot to overcome this very, very serious dependency, of course on the Russian gas. Some of the countries are 100 percent dependent. According to some leading experts from the European Climate Foundation and others, in fact, Southeast Europe has a lot of potential in making the situation much more energy efficient if there would be more cooperation. You mentioned interconnections, but the problem is that, for example, Bulgaria is producing much more electricity that it can spend, while other countries in the neighborhood are dreaming of new (inaudible) plans. So my question is, what will the Commission do immediately and, of course, within the energy union strategy to foster much more cooperation in using energy in Southeast Europe?

Ms. Nina dos Santos: Right. I sense that there's two questions for you, Commissioner Canete. Apologies to you who asked the question for all members of the panel just 'cause I know we have to get on with climate change too. I'm going to moderate that and ask Mr. Canete to take both of those.

Mr. Miguel Arias Canete: We already last month launched a high-level group in Southeastern Europe to analyze the situation (inaudible). We told the

relevant Ministers and developed the infrastructure. And the Commission will follow closely that all the needed interconnectors are established, are put on (inaudible), and we will do the political support and technical and economic (inaudible) needed to develop that. We acknowledge this is a major problem and when we made the stress test we not only focused on any union or (inaudible) community because solidarity and (inaudible).

On the other question of indigenous sources and what happens with shale gas. The treaty of the Energy Union is fairly clear (inaudible) 194 established at member states. Member states have the capacity to decide its own energy mix and explore the sources they want. The European Union only does two things: If they go for nuclear, they establish the most stringent safety standards. If you go for shale gas, we have established recommendations of how the environmental impacts should be handled. We are now assessing what has happened after these recommendations for launching in 2014, what are the best practices in the work?, and after that sound analysis we will (inaudible) whether additional (inaudible) is needed in order to guarantee the environmental protection if shale gas, if (inaudible) is put in place. Nobody prevents a single member state to develop the technique provided they follow the European Union recommendations.

Ms. Nina dos Santos: Okay. Right. Apologies to this side of the room, 'cause I've had my back to you for much of the last 40 minutes. So let's take some questions here from this side of the room. Madam in the front?

Ms. Yoriko Kawaguchi: My name is Yoriko Kawaguchi. I have one comment and one question. My comment is that when you were talking about security, one very important thing which is missing is China and India. The energy consumption demand will grow, tremendously. So in the longer perspective, you just cannot be talking about European security, energy security. That's my comment.

The question is that one word which has been missing so far, never heard of, is nuclear power generation. And in terms of climate change, it's very clean. And in Japan, for the reasons you know, no nuclear power station is working at the moment. But if we think of climate change and if we think of security of energy supply, it's about time that, of course there are conditions in various places, but overall we should be thinking global, what we think of nuclear power stations. And then should try to introduce it to supply, for the supply of energy. And then think of, together, what we could do for the waste. And I would like to get the view of whoever is willing to.

Ms. Nina dos Santos: I think, Commissioner Canete, we'll have to come back to you on this, actually. Because we've got the Paris Climate Change talks,

and thank you very much for opening up the debate here on climate change 'cause that was where I was going to go to now. How big a part can nuclear play in Europe? To that discussion?

Mr. Miguel Arias Canete: (Inaudible) as I stated before, member states are free to develop nuclear if they want, and to make nuclear plants. At the moment there are some (inaudible) going on. In Hungary there are new developments announced. And France, it has announced to announce that they will (inaudible) the life of the (inaudible) nuclear plants. So there are many member states who would use nuclear power. Others who are willing to develop them further. What we make sure is that there is also safe security in supply of the uranium in the nuclear (inaudible) for these plants, that they are not only dependent on single suppliers, also we come back to security of supply also in nuclear, and (inaudible) commissioning of a plant is done in the proper way and that the disposal of spent fuel is done under the proper conditions. In the safe and proper conditions. After all, (inaudible) with the coal and the (inaudible) and we are still having lots of competences (ph) in nuclear area.

Ms. Nina dos Santos: And for a country like Norway that obviously is a huge producer of oil and gas, is nuclear part of the future portfolio of your energy needs here, for a cleaner Norway?

Mr. Borge Brende: Domestically we have no plans for utilizing nuclear. That is also coming back to my point that 99 percent of our electricity comes from hydro, and we are also the sixth largest producer of hydro, and exporting a lot of renewables through hydro to the European Union, and we can increase that. But I think the broader question that also Madam Kawaguchi raised was the global energy mix and the global demand. And as I also said, we should not lose the following picture, by 2050 we probably 10 billion people on this planet, probably the energy consumption will have to increase with 50 percent; so the real question is, How can we decouple this necessary growth to (inaudible) parity with the growth of CO2 emissions? This is really the big issue.

Ms. Nina dos Santos: What do you think the answer to that is, then?

Mr. Borge Brende: That we need to continue to use all the incentives that are necessary to move from a fossil-based society to a more renewable, low-carbon society. And we have started on that. But it's not going fast enough. Then you have to, of course on the methods you have to do what you learned the first day when you start economics, internalize the externalities, a global CO2 tax that taxes what you are emitting.

Ms. Nina dos Santos: And everybody said that this will only work if it's global, if it's implemented among all those 196 countries that will be taking place in the Paris Talks. Dev, I want to come to you, again from a private sector point of

view. Some people have said getting a concerted effort and concerted rules and regulations will actually work on global climate change really will hinge on incentivizing the private sector as well to help people unhook themselves from fossil fuels. So from the private sector, what can firms do to combat climate change?

Mr. Dev Sanyal: I think (inaudible) look back in time. Prior to the financial crisis of 2008, there was a strong focus on the end-state in terms of the sustainability debate. I think we need to look at the transition to that end-state as well. And gas is a very important role as a transition fuel. The reality is, when you look at the fossils complex, 60 percent of the emissions are from coal, and the reality is, if there is a 1 percent displacement of coal in favor of gas, that is the same effect in terms of GG emissions with an 11-percent growth in renewables. So this is not to say renewables is not important, it absolutely is, and our own forecast is that the largest growth in the energy complex is actually happening with renewables. But gas has a very important role as a transition. And so from my perspective, the question is, how quickly can we hasten the pace towards the gas transition? Number one. Number two is the issue of the carbon price. If you price it, then you will start seeing the investment regime move. You will see behaviors move. And we actually support a carbon price, an economy-wide carbon price. And thirdly, you have to look at energy efficiency, the amount of wastage that

there is in the housing stock; in the EU it's 35 percent wastage, across the world only 12 percent of primary energies actually deployed in the way it was intended, the rest is actually wasted or it's inefficient. And last, it's about investments in R&D for a low-carbon investment regime.

Ms. Nina dos Santos: Robin?

Mr. Robin West: I agree with everything Dev said. I don't want to challenge the Minister, but I want to raise a question, and there are some people that argue that we want to move from a carbon-based economy to a carbon-free economy, or something like this. With all due respect, that's nonsense. The numbers just don't work given existing technology. Now one of the things, though, to kind of add to what Dev said is that natural gas actually is going to be a very important factor in facilitating renewables. The problem with both wind and solar is interruptability. The wind doesn't always blow, and the sun doesn't always shine. And you can't store electricity. There's been very, very little progress in battery technology to store electricity. So how do you manage this question of interruptability? And the technology of natural gas is changing. So that in the old days, to cycle up a gas turbine took a long time. Now (inaudible) technologies that come from jet engines which you turn on and off, you can cycle up these turbines quickly, so that now natural gas combined with renewables, it's actually, it's cheap natural gas plus the

cost of renewables is coming down. So I think you may see that, ironically, hydrocarbons may be critical in the development of renewables.

Ms. Nina dos Santos: When it comes to these Paris Talks, and the 2009 talks that we saw in Copenhagen, what kind of partner is the United States going to be in these upcoming talks in November and December?

Mr. Robin West: I think that, I'm the last person to speak for the administration, I can assure you, but my impression is that President Obama looks on climate as a real legacy issue. The administration is, it's all climate all the time. Regulations just came out the day before yesterday in the Interior Department relating to climate and moving revenues into renewables. I think that the president is very enthusiastic. I think there is much less consensus in the country. That being said, I think there is a growing sense, kind of in the middle, that climate really is a serious problem, and it's got to be dealt with. But I don't think that there's much confidence in the policy options there right now.

Ms. Nina dos Santos: Do you really think that we're going to have some concrete framework agreed in that Paris meeting? Especially bouncing off of the China-U.S. accord that we saw?

Mr. Robin West: Well, I'm skeptical that they will be very binding. I mean, you may have a framework, but I'm not sure it's going to be binding. And I think that, remember that, again, this is a very unpredictable area. I mean, 10 years ago

when we had, we talked about climate 10 years ago here in Brussels; nobody would've thought that the United States was going to be the star performer when (inaudible) to reducing carbon emissions. So that there will be changes in technology, and I agree entirely that unless there is a price for carbon, unless it's priced in, nothing's going to happen. But it's somehow, the other thing is, is that India and China can't be free riders in this. The United States just won't work with that.

Ms. Nina dos Santos: Commissioner Canete, how confident are you that we'll get a binding agreement? This is part of your portfolio.

Mr. Miguel Arias Canete: I am pretty confident that we'll get it, because this is not only a serious problem. Probably it's the most important challenge of this century. 'Cause global warming is a reality. If we don't avoid the increase of temperature over 2 degrees centigrade, the consequences will be dramatic. That's clear. All the scientific evidence is on the table. Nobody can contest that (inaudible). So we must fight global warming. And the European Union is doing so. And we expect other countries to come along with ambitious commitments. We have already said to the United Nations our international (inaudible) contribution at 40 percent reduction of emissions internally within the European territory, not using international credits, and (inaudible) Switzerland and the European Union and the two parts of the convention that (inaudible) we expect all the major players

of G20 to come along with ambitious commitments. The United States, Russia, China, all of them.

Ms. Nina dos Santos: What commitments do you think should be in a binding framework to make it last? Because I was saying before, if it's not stuck to by all the countries involved, then some people say it'll never get off the ground in the first place.

The Hon. Borge Brende: First of all, there must be a global final target. The European Union is proposing that we support the reduction of 60 percent emissions by 2050. It means a long time, so that in the meanwhile, we not only (inaudible) but we'll have to just convince another sources. It's clear. This is not the--the carbonizing on economy is not in the next week or the next year. It's a very long period. And when (inaudible) that's why the European Union will have an emission trade system. That's why the commission at the moment is establishing a market stability (inaudible) that's why we will come with a EPS proposal in the next month, to have at least the European Union a carbon market out of other areas of the developing carbon markets, in the United States, in China, in Switzerland. The ideal situation will be a global carbon market. And then pricing for carbon, and then it will steer the (inaudible) but we are doing this in European Union. You know, we have the 20-20-20 objectives, 20 efficiency, 20 (inaudible) 20 emissions. We are achieving them. Now, we have 40 percent reduction of emissions, 27

percent in renewables, 27 percent in energy efficiency for 2013 and we will achieve them all.

Because it's very clear if you want to have the less emitted source is not consume energy. Every one percent of energy efficiency a country achieves, European Union achieves, reduces imports of gas by 2.6 percent. So we are fighting in all the grounds, in renewables, in energy efficiency, the carbonizing economy, establishing carbon markets. But we want all the other major players in the world to do the same thing, so that there is a competition level playing field.

Ms. Nina dos Santos: Yeah.

The Hon. Borge Brende: We will obtain something as fighting climate change and have a level playing field. If the European Union on its own will not be able to do so. We are living the level of emission and we will keep on doing so. We will closely with China and United States to bridge alliances with other countries and I think Paris must be a success.

Ms. Nina dos Santos: Let me take some more questions here. There's one at the back, one at the front.

Mr. Rob Atkinson: Rob Atkinson, Information Technology and Innovation Foundation. So I want to take exception to this notion that price is really the driver of this. We wrote a report about two years ago where we looked at about ten major technology innovations from the 20th century, including energy, and there wasn't a

single one that was affected by price. They were all technology push, not technology pull. They were all driven by innovation, including fracking and natural gas. That was really driven by DOE funded R&D.

So if you look at Europe, for example, compared to America, America has significantly more electric cars than Europe, yet the de facto carbon price in Europe is probably ten times higher through the gas tax. So I guess I would argue it's really innovation and R&D that we need in this space, it's not price. Price helps, price can be a supplement, but the notion that somehow we're going to get where we need to go based on price, the evidence of the past just hasn't borne that out.

Ms. Nina dos Santos: Okay, thank you. We'll come to that in just one minute. I just want to take another question, another couple of questions, in case they feed into the same dialogue. Thank you.

Ms. Kori Udovicki: I'm Kori Udovicki from Serbia. And coming from a transition country, I must say I have heard and elaborated myself endless arguments for why interventionist policies will not really get supply or demand, whichever you want to intervene on, where you want. The only way to do it is through price. So this is also a price-related question. But my question is, why are we talking about carbon markets, about push for technology, about all sorts of ideas about how to affect the supply and demand of renewables instead of what the

Minister mentioned, a carbon tax? And it should be a value-added carbon tax that affects demand, ultimately. It would solve the question of climate in no time and it is almost never on the table. I am not sure who I am asking.

Ms. Nina dos Santos: I'm going to put your question to this gentleman in the front, Robin, who looks perfectly poised to answer both of those two questions.

Mr. Robin West: Lucky me. On the question of fracking technology, the energy department helped underwrite the development of some technology which was basically there. But it was the application of this technology which was driven by market forces, which was the key. That changed everything and I was involved in that process. And the price of natural gas was the key factor in driving that.

In terms of a carbon tax, I think a lot of people feel that a carbon tax is clearly the most efficient way to do it. But one of the problems in all of this is political will and in the United States, there simply isn't the will to do it. So I would defer it to much smarter people than myself who understand politics, but I think that this is going to be a long and torturous path. I mean, the two-market approach is either as a carbon trading system or a tax and whichever one is the least painful. One of the problems with carbon trading, of course, is that politicians sometimes have been known to issue a few too many permits, which causes the price to collapse and so the whole system collapsed, and that's what happened in Europe before. And so at any rate, it's really a question of politics.

Ms. Nina dos Santos: Can I just--oh, sorry, go ahead. Yeah.

Ms. Kori Udovicki: But if I may say, well, I understand that that's really a question of political will in the U.S., but then I don't understand why Europe goes through the trouble of making these complicated markets instead of advocating a carbon tax.

Ms. Nina dos Santos: Commissioner Canete?

The Hon. Miguel Arias Canete: If there was a global carbon tax, everybody with a level playing field, but we have opted to develop this carbon market. You have some imperfections. We are correcting it with the market stability (inaudible 04:07:39) and within it will work and will be market driven without thought put in by politicians.

Ms. Nina dos Santos: Are you convinced that's the best strategy?

The Hon. Miguel Arias Canete: We are convinced, otherwise we haven't--

Ms. Nina dos Santos: Or is it just the easiest strategy to implement at the moment?

The Hon. Miguel Arias Canete: We are convinced the discussion of carbon tax or carbon market has been ongoing. They was making a choice and you (inaudible 04:07:59) polices daily. We are establishing a carbon market that works properly takes time, linking with other world markets takes time. And we have developed this idea, we are correcting the imperfections, and I think it will work.

Ms. Nina dos Santos: When you hear this kind of political discussion here, as a business person at the helm of BP, what do you think? Because obviously, business leaders say day after day, well, the problem for us is we just don't know how to navigate this ever-changing policy mix.

Mr. Dev Sanyal: I think two observations, Nina, from my side. Number one, we wanted to look at suite of things that need to be done, not just one or the other. So, for example, on the issue of innovation and R&D spend, absolutely. Because you have a cap and trade system or you have carbon taxation doesn't mean that you stop doing that. So I think it's important that we actually have a suite of things being done to encourage energy efficiency, to encourage R&D investment, to sort of create a trading mechanism and to have, if you will, the price signals that results in the outcomes that result in, over time, a low-carbon economy. From our perspective, as a business, I mean, put in perspective, most people think of us as a resource company. BP runs the world's largest civilian super-computing center. It processes two billion-million petaflops a second. I don't know what a petaflop is but it's a lot. And so technology is, I think, the great enabler, as Robin was saying earlier, as well.

And the second point I would make is business looks for certainty and the more we can achieve that certainty, the better it is because our investment cycles are very long. Last week, we signed a deal, a \$12 billion deal, to invest in the West

Nile delta. We've been in Egypt when King Farouk was in charge, we were in Egypt when Nasser was in charge, we were there when Sadat was in charge and then when Mubarak was there, when Morsi was there, when Sisi was there. So we look at a long-term cycle in terms of our investment. So it's incredibly important to have certainty. The more certainty we can achieve, the better it is for the investment climate.

Ms. Nina dos Santos: Okay. Mr. Brende, do you have a strong view about whether or not we should have a carbon tax or a carbon trading system?

The Hon. Borge Brende: A global carbon tax is the best option. I think what the European Union has done on agreeing to reduce their emissions by 40 percent by 2030 is something very ambitious, very good and it is a prerequisite for having success in mitigating global CO2 gasses. Norway will also adapt the same system. That's very tough for us. You know, if you have 99 percent of your electricity being renewable and you cannot just shutdown coal-fired power plants or two and then reach the goal. That's a much tougher way but we also have to set examples. What is new now compared to de Quioto is the willingness also from the emerging economies to be part of a global deal. Without the fastest growing emerging economies as part of it, you can just forget it. That has to be very important part of COP21 in Paris. And without the low-carbon economy, there will be no real deal on climate because we have to move into a low-carbon economy using all the

necessary resources to do so, because the cost of non-action far exceeds the cost of action.

Ms. Nina dos Santos: Robin, just briefly, coal. We haven't really dedicated enough time to talking about coal because everybody goes to talk about gas. Perhaps even nuclear oil. But coal is the elephant in the room, particularly when it comes to China and countries like that. Is there anything that realistically can be achieved in these Paris talks to try and calm the effects of coal to bring down the reliance of China on coal?

Mr. Robin West: Well, China and India both--and other parts of the developing world, I mean, coal is very inexpensive and I think that in the near to medium term, we have to find ways to encourage, frankly, the use of natural gas. Natural gas and renewables. But I think that coal is a factor, coal isn't going away. It will remain a factor in the United States. I think about 40 percent of our electricity is generated by coal. Over time, it'll go down to 30 percent, but it's going to stay there for a long time.

Ms. Nina dos Santos: Are you a buyer of this argument of clean coal?

Mr. Robin West: Clean coal is an oxymoron. And I think when it comes to removing particulate matter and everything, there has been tremendous progress. But when it comes to CO₂, it's very difficult. There's a concept called carbon capture and sequestration, which the environmental community has been pushing

hard as a solution, a way to manage coal, as Dev can tell you, nobody knows more about carbon capture and sequestration and storage than the oil industry.

But what they're talking about, frankly, is completely unrealistic. And that's a silver bullet that the environmental community's hoping for and I just don't think it's going to work.

Ms. Nina dos Santos: Mr. Brende?

The Hon. Borge Brende: So one thing is that coal is already very cheap and we see that the consumption of coal is increasing in emerging economies. But on the top of it, it is heavily subsidized. Look at Indonesia, Egypt, India using 20 percent of their (inaudible) to subsidize something that's environmentally unfriendly. So I'm happy to announce that Norway will now increase very much so our support to the World Bank's fund, that they go in and incentivize developing countries and emerging economies to use this unique opportunity with lower oil prices, lower gas prices, lower coal prices, to end their subsidies, use the subsidies for education and health and good governance. And then it also is very environmentally friendly. And to cushion this, we will contribute as an energy producer because this is really one of the lowest-hanging fruits in Paris, to cut these irresponsible energy subsidies for coal.

Ms. Nina dos Santos: What would be your ideal criteria for deeming these Paris talks a success? What would make COP21 in Paris a success for you, presumably including that?

The Hon. Borge Brende: I think that is a part of it, and other low-hanging fruits. Stopping, for example, deforestation of rainforests and deteriorating situations when it comes to forestry. That's also a low-hanging fruit. We need, in Paris, to lay the ground for the two-degrees scenario that will not increase the global temperature with more than two degrees. Because if we do so, the cost of this will be extremely high. And we are, in many ways, the first generation that is seeing the effect of climate change, and we are also maybe one of the last generations that can really do something to change it. So it's a huge responsibility and we should race to that responsibility.

Ms. Nina dos Santos: Ever so briefly Commissioner Canete, what would be your criteria for success here walking out of those (inaudible) 21 talks and thinking the world has nailed it here?

The Hon. Miguel Arias Canete: My criteria will be that we helped to establish a long term objective of reductions and long time commitment of all the parts 60 percent of (inaudible). Finding mitigation targets for all, each part are called in its possibilities, a dynamic process of accessing (inaudible) put on the table are enough to cope with the two degrees of (inaudible) parties will have

attached a dynamic review process over the five years. And also this would be important chapters for adaption, claim of finance, transfer of technology and capacity building that we should support, because there will not be agreement if we don't favor adaption in developing in country. There will not be agreement if there is not commitment to transfer of technology. There is no agreement if there is a financial package to weigh developing countries to adjust to the promise of climate change.

So it must be a very ambition (sic) and comprehensive packet. And we have to work from here to there. So that all the countries come with commitments with (inaudible) before the Paris summit. And that we can access the level of our ambition before we go to the negotiating table.

Ms. Nina dos Santos: So some busy time for diplomats between and then. And let's take three more questions, because we've only got five more minutes. I'll take them both together. Thank you very much.

Mr. Hari Hariharan: My names Hari Hariharan. I'm from New York. This is a question for Dev. Dev in New York we commonly hear two refrains, that at the margin shale has become the swing factor in establishing prices. And secondly, in keeping in line with your comments about financial sustainability and long-term views, the feeling that good guys are bad assets, and weak hands are the best assets. Meaning, you know, large oil major state-owned petroleum companies have

all the deep-sea long gestation periods. In fact somebody said (inaudible) is now called Cash Is Gone or something so. Would you care to comment on that asymmetry and do you see a big transfer of portfolio, big guys like you, into things like shale, where you take out weak guys?

Ms. Nina dos Santos: That's an excellent question. Yes, thanks.

Mr. Nelson Cunningham: Nelson Cunningham with McClarty Associates in Washington. I've got a question that goes back to the energy security question at the beginning, but also about price. It's currently illegal to export crude from the United States. We can export liquid natural gas, but only after a very cumbersome permitting process in which there's been a substantial backlog. So the US is offering little in the way of supply of either crude, zero, or liquid natural gas, some. If we were to change our law, and to permit exports of crude, to permit more liberalized exports of natural gas, a) what would that do to the price of oil and gas in the United States, and second, what could that contribute to energy security in Europe?

Ms. Nina dos Santos: And I'll take a third question. Thanks. Thank you.

Unidentified Man: My name is (inaudible) from the European Parliament. My question is on the so-called carbon bubble. The governor of the Bank of England, other major actors in the financial sector are talking about this threat to the financial markets because as we all know according to the analysis of the IEA,

2/3 of global fossil research have to stay underground in order to achieve the 2C goal. How do participants on the panel assess the impact that this aspect is going to have in the financial sector and how might that contribute to changing the game?

Ms. Nina dos Santos: Okay. Let's start out with that question there on the shale oil and the asymmetry of oil production at the moment. So, effectively, you're asking will you be taking out some of the small shale oil producers? BP, companies like BP.

Mr. Dev Sanyal: I don't think this is the proper forum to make announcements of that nature. But, I think generally speaking what has happened over the course of the last one year has been extraordinary. There has been a \$1.6 trillion shift in the red between producers and consumers. That is circa 2.5 percent the world GDP.

This time last year the price of oil, by the way, as \$107.00 on this particular day. It is currently \$53.00, and by pure coincidence, on this day, ten years ago, the price of oil was \$53.00 as well. So there's been a big, big shift. That means the industry has to recalibrate, (inaudible) industry has to recalibrate.

BP and companies like BP, Exxon, and Shell, and others, are involved in shale in North America. I think the point that Robin was making is that the revolution, and I think this is not a bombastic word, it is the accurate description, did not get engineered by the large companies. It was by the smaller entrepreneurs.

But subsequent to that initial phase, there has been some consolidation. There have (inaudible) and other super majors investing. (Inaudible) go, but clearly, (inaudible) I mean, you saw the question of capital investments. If you look at the independent sector, year-to-date, there has been a 14 percent cut in the capital. If you look at the super majors been around roughly 20 percent.

So people are recalibrating, but you know, when you look at the landscape of the day, you can--you're so believing you have the answers. We just need this to play out for a while, and there will be inevitably a recalibration that will take place.

Ms. Nina dos Santos: There is an argument, though, of getting more involved with shale production at the moment, because the returns are quicker. Rather than plunging down into the depths of the ocean, as you said, it's three kilometers down, to drill down through three salt levels when that's very expensive at the moment.

Mr. Dev Sanyal: I think, again, you've got to take a long-term view. It goes back to your thesis of the future. We do see this as a cyclical. If you see this as a cyclical shift, and based on that, people will make judgments.

Ms. Nina dos Santos: Robin, I want to ask you also though to take this question about the U.S. potentially exporting its oil. This is something that I tackled personally a number of times in forums like this with the US Energy Secretary Ernest Moniz. And for the moment, no, the U.S. can't export oil. Will we

see that day once, and will we see more energy coming to Europe to try and counter Russia's dominance of the market here?

Mr. Robin West: Couple points. One is that we will get to the point where we can export liquefied natural gas. It's a laborious process, but it's moving that way. And I think that'll cure itself.

Oil is slightly different. There's a ban on oil exports as part of the Export Administration Act. It goes back to when the United States was trying to deal with scarcity. Now that we have a surplus of crude oil, and--but it's very important. It's light crude oil. And the fact is that right now, the globally-traded price of oil is Brandt. That'd sort of the international standard. WTI, West Texas Intermedia, is the US standard. And there's about a \$9.00 a barrel discount on American crude because of that ban.

So, I think that the industry is frantic to get this lifted. It's costing them \$9.00 a barrel. One may ask why the administration wants to help OPEC smother the American energy surge. But I think that there's also a fear of some, frankly, in the environmental community who don't want any more oil production in the United States. And there are also some people who are afraid that somehow if this change took place, that somehow the consumers would be penalized, and that gasoline prices would rise. Research does not show that, but there's an unspoken fear.

Ms. Nina dos Santos: Now, I know that we're just about (inaudible) gets answered out of courtesy. So, Commissioner Canete, I'd like you to answer the gentleman's question there from the European Parliament (inaudible) carbon bubble with this issue of (inaudible) carbon taxes, but at the same time (inaudible) hook Europe, if you do manage to accomplish (inaudible) 21 criterion that you're talking about to keep 2/3 of the natural resources in the ground.

The Hon. Miguel Arias Canete: I think that (inaudible) policies are going (inaudible) don't have any--are not opposed policies. In the last years, in the (inaudible) union, we have created about 1 million jobs in industry as (inaudible) to bring growth. Clean energies, and renewables, and energy efficiency, so that our big opportunity--we have big opportunities when you decide to fight climate change and change your energy policy.

Gas, you know, it will remain with us for a long time. But climate change objectives have long-term objectives. 2050, we have to reach our oil objectives. We will have to develop our renewables. We have to develop energy efficiency. We have to learn new techniques. We have to develop (inaudible) is going to support recession (inaudible) in this area, to make it the market case. Because it's the only way coal can keep on going. And that's why (Inaudible) should be a priority of European Union. (Inaudible) and the (inaudible) 400. We will support investigation in these areas so that we will also have these opportunities.

But (inaudible) growth is a possibility. And if you go to the (inaudible) now, it's quite different than in the past. In the past, only governmental NGOs were there. Now all the industry is there, with (inaudible) showing the promise that the world is doing to what's clean energies, and energy's affordable. So (inaudible).

Ms. Nina dos Santos: --very much for joining us today, gentleman. Great to have you on the panel. And, (inaudible) we will leave it there and hand it back to (inaudible).

Unidentified Man: --as you go out towards the left, those who have lunch in the Empire and Brasserie Rooms will walk out to the right-hand side. But before you get up, I would like to introduce Nick Gowing, who will tell you about our mystery session tomorrow. Nick.

Mr. Nick Gowing: Don't get up and walk out, yeah, because (inaudible) tomorrow, I need to try and help you understand what we're going to try and do, which is going to be a break with the past.

If you think a year ago, we were coming to terms with Crimea and Russia. A year ago, as we heard from Derreck this morning, IS and what IS was doing was not--was just about being considered. Then we had ebola. Then we had a 60 percent fall in oil prices, as well as the Sony security--the cyber security problem.

What we want to do is encourage you to come here. We're not going to have a panel. We want to have general conversation where what is on your mind, which

maybe we haven't even put on the agenda yet, can become part of the major discussion for about an hour and a quarter. And so that's going to be the principle. There's no agenda. No panel. We want to know what's on your minds. And it's not just as a way of encouraging you to ventilate. Come with some ideas about where you think there are real vulnerabilities at the moment which need to be addressed. How is leadership coping with this?

I'm not going to tell you prescriptively that this is what you should be thinking. I'd like it to come from you. And we will also be joined by the Young Professionals, as well, because this is, after all, a generational issue, as much as the current generation of leaders.

So, think of it in those terms. Be encouraged by that. See that as where you can contribute as part of the evolution of the Brussels Forum with new formats, new ideas, and not just a long list of panels. This is going to be the way forward for the next 10 years. And indeed, this will lead, because we're going to do a double-header. In Les's session as well, on the Brussels Forum in 2025. That will follow immediately afterwards. So the two come together.

And if you've already got a great idea on your mind which you'd like me to think about, so it's not a cold start tomorrow morning, then please, and where are you Jonathan? Where are you Benjamin? Up there on your BF Connect. There's a way of doing it. There it is. If you go to agenda, which will bring you up with the

mystery session tomorrow, it's not a mystery anymore. You now know what the mystery is going to be. There'll be a few mysterious things, though. Go to public comments. And there you can write in as is being done by Daniel, I think it is, submit your comment here. So it's a comment, an idea, then we can use that as a springboard for taking forward the discussion for just over an hour tomorrow morning.

So please come back from coffee tomorrow morning. Don't head for the train. Don't head for the plane. And don't go for a run. Come in here.

I think that's about it. It's lunchtime.