Paris Energy Club

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A Summary of Remarks

Session 1:Natural Gas: markets and prices

We started the discussion with *The Great Reconfiguration* i.e. the impressive growth in LNG capacity over the 2015-2020 period. Basically, 150 Mtpa will be added, which is equivalent to twice the capacity of Qatar. That means that LNG export capacity will increase by roughly 50%, and the two main countries responsible for this increase are the US and Australia. We are still, as of the end of 2016, at the very beginning of these additions, and roughly a third of this capacity has been added so far, but it is still ramping up to capacity: four projects have started so far in Australia, and the first two trains have started in the US, but the big increase is still ahead of us.

Interestingly, the first floating LNG will start in Malaysia at the end of the year, followed by Prelude in 2018. One thing which is encouraging is new markets. Because of low prices, countries are potentially interested in importing LNG, so there are roughly 35 LNG importing countries as we speak. A certain number of LNG countries will start importing by 2020, such as Columbia and Uruguay, and there will potentially be Bahrain in the Middle East and Ghana as well, along with Bangladesh and the Philippines. A number of countries are looking at LNG imports. The reason is that while sellers are experiencing a slowdown in Asia, they are open to looking at new markets, because they need some new markets to absorb the supply which is coming to the global LNG market.

However, reconfiguration is also a question of the LNG industry itself. Twenty years ago we had a kind of club of LNG importers and exporters, and if you put together all the people who were really active in the negotiation of long-term contracts, we might have the same number of people as we have here today. However, looking at the people who are active in the LNG industry, we can see a lot of changes in every single part of the value chain.

This starts with liquefaction, where we have the rise of floating LNG, which is very interesting not only in terms of the projects dedicated to specific aspects but also new companies with new ideas like Golar. We also have new companies which are entering the liquefaction part like Perenco in Cameroon, but Cheniere has also massively changed the way people look at LNG and new LNG exporting countries. There are also, on the market side, not only new entrants in the LNG importing countries but also new LNG importing countries and new participants like LNG traders and importers. The traditional Japanese players are now looking at the LNG trading platform, but that does not hide the fact that, for this industry to succeed, you need more cooperation and potentially alliances between LNG players, and this is something we see in terms of alliances between different buyers and between sellers and buyers.

Looking at new markets Latin America is not traditionally a huge market but could potentially become more than a niche market if the conditions are right. There is also Brazil which is important because the LNG demand in Brazil depends very much on hydro, so in a very dry year you need a lot of LNG because water is very low, but in a normal year you may not need that much LNG. The problem is that there is absolutely no way of knowing in advance whether a year will be dry or not, so that means for Brazil you need a lot of flexibility.

Regarding Africa and the Middle East, right now they are a very small market but could potentially grow quite a lot. Currently, these two regions are net exporters, but so far the intra-regional pipeline trade has been relatively disappointing, so in the Middle East a lot of countries are actually importing already, and more countries will be added. We have Bahrain, which is already building its new LNG import terminal, and Sharjah just signed a contract with Uniper, so there are a lot of changes. Regarding Africa, nine or 10 countries are looking at importing LNG to some extent. Africa is a very difficult market, of course, because they are countries which have either nothing at all, no infrastructure, or very small, embryonic markets, and there is one very big problem in Africa, which is that they need to pay at the end of the day, and not all consumers are paying for gas and electricity.

However, in terms of empowering and developing the power market in these regions, at the end of 2050 we will have two billion people in Africa, and currently 600 million people do not have access to electricity, with even more lacking access to clean cooking, so that is a big challenge.

We then addressed the changes which are happening in the LNG contractual and pricing frameworks. Right now the power is in the hands of the buyer. We are in a buyer's market, and buyers want pretty much everything, but they do not quite know what they want in the end, so I am sure that the negotiations between buyers and sellers are quite difficult. The sellers have a rough idea of where they want to go – they want to move ahead with their LNG liquefaction plants, but the buyers want cheap LNG, possibly for the long term, but at the same time some of them do not want to commit for another 20 years, because they have absolutely no idea whether the demand will still be there at that time. They want to change the prices and the terms of the contracts, they want more flexible LNG, they want to renegotiate already agreed contracts, so that is a lot of changes, both on the buyer and seller side.

So spot and short-term LNG trading will increase massively. Short-term contracts are contracts of below four years. Why do we think that this will increase? There are different reasons. There is the small amount of uncommitted LNG rising to the market. There is also a lot of portfolio LNG, so basically the aggregators have some LNG but have not always signed the secondary contracts to send this LNG downstream. There is also the role of growing US LNG supplies. Something which will play a very important role is the fact that we have a lot of contracts which will expire over the next 10 years, a lot of which are in the hands of Japanese and Korean buyers. These buyers are over-contracted, so their willingness to extend these contracts will be limited. Maybe they will be extended, or maybe they will be extended at lower volumes, or they will be extended for two or three years until they have better visibility regarding long-term demand.

Another big problem right now is that for future investments we do not only have reductions in terms of the upstream oil and gas resources, but we also have a lot of uncertainties for future LNG projects. The price we have right now is USD 6 or USD 7 per MMBTU in Asia and USD 4 to USD 6 per MMBTU in Europe, which are not high enough to support greenfield LNG projects, so this is of course a problem for those projects in eastern Africa, and it is accentuated by the fact that the buyers do not really know what kind of indexation they want. They do not really want oil indexation and would like different indexation. Henry Hub is not attractive anymore, and there is no trading hub in Asia to replace this kind of indexation.

What can we say about the LNG business? The LNG business environment is changing very rapidly, and on the buyer side, they are no longer ready to accept traditional long-term, inflexible contracts with oil indexation. They want to have a lot more flexibility both in terms of destination and volume, which means not so much that the sanctity of long-term contracts is no longer guaranteed, but that when you are signing a long-term contract, your buyers may knock at the door a few years later wanting to basically change everything, as we have seen with RasGas-Petronet, where the contract has been changed, and Petronet is also asking Gorgon to reduce their contract price by 10%.

Another potential danger is what will happen if oil prices increase while spot prices stay low – that will be quite interesting, because then there will be a push towards more renegotiation of long-term contracts, as we saw in Europe in 2009 and 2010. Sellers are obviously trying to adapt to this new business environment with cost reduction, collaboration, new designs and smaller projects The last thing we want is a supply crunch, because that would not only be bad for the industry, as it would mean high gas prices again, which is never good for the politicians when they are thinking about COP 21 and its consequences, but it would also be bad for all these new markets who are looking at LNG, because if you have USD 10 or USD 15 per MMBTU, all of these new markets in developing countries will say they cannot afford it.

We then discussed the main conclusions of the G20 Summit in Hangzhou, China, early last September. The conclusions focussed on natural gas as the only fossil fuel mentioned during that G20 Summit. Because natural gas emits less CO_2, the G20 countries have to help and enhance cooperation with the natural gas industry to limit the current effects. This is very positive, because it is the first time that natural gas has been mentioned during such an important summit.

However, one of the main concerns about natural gas, of course, is methane emissions, and the gas industry is well aware that it has to be more transparent and to enhance or foster communication on that issue. We have to face that problem, but we should remember that methane emissions related to the natural gas chain represent only 2.6% of total global emissions.

Another point that is important to keep in mind is that generally the media focuses on CO_2 emissions, and of course gas emits less than other fossil fuels, but compared to the other fossil fuels does not emit SOC and NOC particles.

Regarding gas demand, we know that China will be the driver in the future, followed by India and the Middle East. Asia will remain the key driver for LNG growth, not only Japan, Korea, China and India, but all the Asian countries will be the focus of attention.

We then went to a comparison between the Silk Road and the new gas routes. China is very sensitive about the Silk Road, as it is part of world history, and it is interesting to keep in mind that China not only supplied the West and the Middle East with products, but it was also a very strong cultural link and a very peaceful tool in the past. It is interesting to look at where the gas reserves are today. Regarding conventional gas reserves, four countries – Iran, Russia, Qatar and Turkmenistan – represent 60% of world gas reserves for conventional gas. Three of the four countries are located along the historical Silk Road.

Regarding the rate of consumption, comparing the change from 2000 to 2040, it is interesting to see the ranking of the main areas – the US, the EU, Russia, the Middle East and China. The US will probably remain the first in terms of gas consumption, but the Middle East will probably soon become the second, as there is strong demand for power generation there, and China will be the third. Therefore, it is also a game changer in terms of consuming areas that we need to keep in mind.

Reversing the notion of the Silk Road, tomorrow we could imagine that those countries, Russia, Iran and Turkmenistan, will supply, as they are supplying now, China and India, and I see a strong link between the countries and the people for a better tomorrow.

Session 2: Consequences of the US Election

The forecast for the election was expected to be 65% for Hillary Clinton and only 35% for Trump. All the people got it wrong, all the polls got it wrong, and the popular vote was about 50-50, with Trump winning by a considerable margin in the system of electoral votes used in the US, so it was not a disputed outcome.

Why did so many people vote for Trump? It is partly related to a perception of the conditions of the country over the last 20 years of relatively free trade, which has created a climate, particularly in the industrial part of the country, where tens of millions of people lost their jobs. We do not know how much was due to NAFTA and free trade and how much to technology, which replaced a lot of people, but in any case millions of people lost well-paying jobs, and whatever jobs they got back, if they did, were poorly-paying at half or less of what they were paid before, so they were very unhappy.

They were also very unhappy, particularly the white lower middle class, because the country is more diverse. America was a white country in the 1950s, and today about 45% of the population consists of minorities – Afro-American, Hispanic, Asian and others – and the whites feel that somehow they would prefer to go back to the way life was in the 1950s, with well-paying jobs with the whites in control, though of course that cannot happen. However, this unhappiness was expressed in very strong pro-Trump rallies. There was rising tension about the immigration issue, about the 11 million undocumented Latin Americans, and while they say Mexicans, Mexican immigration has pretty much stopped, and they were coming from Latin America. We must remember that they take all the jobs that white and black people no longer want to take, so if you were to remove them there would be an explosion in the cost of producing vegetables, fruits and buildings, because all the people who do that are Latinos – they are very hard-working and like most people who are recent immigrants, they are the ones who work very hard for relatively low wages. However, this is one of the things that the older white population is very much opposed to.

Then there is war-weariness – since George W. Bush came to power, America has fought two wars in Iraq and Afghanistan with zero positive impact, a lot of loss of life and two and a half trillion dollars of war debt added to the national debt. There is a mood that there can be no more wars, because they are not going to pay for them when the infrastructure of the country is falling apart. You only have to take the train from New York to Washington, and it looks like something Europe had in the 1960s. It is very old-fashioned and all that has to be improved, so infrastructure was obviously something that was emphasised.

However, the campaign was actually not as much about the issues – the campaign was more about the personalities. Trump took on Clinton, who is an extremely experienced politician and has been a senator and Secretary of State, probably the most qualified person who has ever competed for that job, and in return he has absolutely no experience in government. He is not such a good businessman – he says that he is, but he is not – having gone bankrupt many times and started again, and the ones who paid the price were his partners. He had enormous tax write-offs, which is why he never wanted to reveal his tax returns. However, it was a fight between personalities. He accused Hillary Clinton regarding the email leaks and he considered her a danger to the state, that while she was in office she took advantage of the Clinton Foundation's contacts to make money for her husband and herself. He created a climate that she was utterly corrupt, and he was the new man, clean, because not all that much was revealed or known about him, and that became the centre of the debate.

Therefore, there was the combination of all those issues, the macro issues and personality issues that led to the growth in support for Trump. Trump's was largely supported by less well-educated white males, but increasingly, when the bad news about Clinton became known, also by more white women, despite the fact that he was misogynist. There was an element of anti-black and anti-Hispanic racism, then there were the economic issues of outsourcing and trade, and all that was part of the picture, that people wanted a change, regardless of what would come in its place. The religious right wanted to make sure that the next person would be a Republican because he would appoint the next judges for the Supreme Court, which has enormous impact on basic issues of social policy.

What is Trump promising? He is promising big tax cuts, predominantly for the rich, taking the top rate, which is already low in European terms, from 40% to 33%. He would do away with inheritance tax and bring corporate tax down from 35% to 15%. The other thing he would do is to impose major cuts on regulations across the board – energy, environment, transportation – all kinds of regulations that have been put in place, perhaps too many, to protect the environment. He is opposed to a minimum wage and basically says that the market should determine the wage and not government. He wants huge tax cuts and a major programme to enhance the military. He is against fighting new wars but he wants to boost the military budget considerably. How does he propose to pay for this? He wants to cut regulations and cut taxes, and says that there will be phenomenal growth, so it is all based on 3.5% to 4% economic growth, which suggests productivity growth of around 3% to 3.5%, which the OECD says is next to impossible. There will be a major programme of infrastructure expansion etc.

Social security and Medicare, 40% of the federal budget, he will leave untouched, and that is the one area which Republicans always wanted to make cuts. He has basically destroyed the base of the Republican Party, which has basically become a populist party and not a conservative republican party, and the Democratic Party, with Hillary out, will have major problems, with the more liberal wing fighting the more conservative wing to which Hillary belonged.

Regarding immigration, if we believe what he said, 11 million undocumented immigrants will be sent back home, first the ones who are criminals and after that the others, and a wall will be built between Mexico and the US, the Mexicans being supposed to pay for it, which they obviously will not.

The next major issue is trade, which is very dangerous – if Mexico does not agree to a review of NAFTA, he will impose a 35% tariff on Mexican goods, and he can do that without congressional approval. Should the Chinese not agree to renegotiating the trade agreements, he will put a 45% tariff on Chinese goods, so if he does what he has said, we could see the beginning of a major trade war in the world. Forget about a new trade agreement between Europe and the US and forget about the TPP with the Asians.

Regarding energy and climate change, he proposed to withdraw from the Paris Agreement and to terminate the Clean Power Plan that President Obama has developed. He rejects the science of climate change, saying that a lot of it is a hoax, and supports an 'everything energy' strategy, where everything goes, coal, oil, gas, and so on. He says that solar and wind is too expensive, that wind power is unsightly and damaging to birds, he is opposed to a carbon tax, and he promises to reopen coal mines in Virginia, Pennsylvania and Ohio, which is unlikely to happen because there is just not enough market for their coal. Regarding the transport sector, which is a major area of pollution, Clinton had proposed to further cut the CAFE standards and improve the efficiency of trucks. All that will be put aside, and he might even make a deal with the car industry to keep more jobs in the US in exchange for some easing up in the CAFE standards, because the industry prefers to build SUVs, which are not efficient, but that is where they make their money.

He wants to rein in the EPA, because it is in charge of managing the Clean Air and Clean Water acts. Simply put, he wants to put new people in there and wants to confine them to the minimum remit of clean air and safe drinking water for all Americans, and that is it, cutting down everything else. He will do nothing about fracking or about methane release from tight oil and shale gas. He wants to roll back the action on clean power plants, and has said that his presidency will accomplish complete American independence, creating jobs. He says that independence of oil imports from OPEC or any other nation is in their interest, and that is the policy they will follow.

Regarding other energy, every energy dollar not harvested in America is harvested in a foreign country, and often ones that are not very friendly to the US. He promises to eliminate regulations, which would grow the energy industry, adding jobs and creating wealth. He promised to abolish all regulations making drilling more costly and greenlighting exploration, production and development in foreign land. The key promise is jobs, and whatever stands in the way of job growth, whether the environment or anything else, will just have to suffer.

It is important to hear it directly from his mouth to fully understand the spirit of Donald Trump. Starting with global warning, there is the famous tweet that he has sent around and has been retweeted so many times, saying that the concept of global warming was created by and for the Chinese in order to make US manufacturing uncompetitive. You need to have a culprit, and that clearly indicates his attitude. One of the very first things that he will do requires basically no action, because he will say that he is not bound by the kind of pledges that have been by the US under the Paris Agreement and that he will ignore the process from now on. You may say that he needs to give three years' advance notice before formally withdrawing, but in fact, because the agreement is based on voluntary and independent compliance on the part of the different countries involved, if a country decides it just does not give a damn about it, that is it – that is the end of the story.

Regarding energy, what you find on his website is first of all the concept of energy independence but the second part is also important, the declaration of American energy dominance and a strategic economic and foreign policy. That is more than independence – dominance implies that he intends to play a role in shaping global energy markets, and he will expect to be able to do that.

Thirdly, he will release USD 50 billion in untapped shale oil and natural gas reserves, plus hundreds of years of clean coal reserves. Fourthly, the US will become and stay totally independent of any need to import energy from the OPEC cartel or any nations hostile to US interests. That implies that he may very well be taking measures to curb imports of oil from places like Venezuela or Saudi Arabia for that matter. The next concerns open onshore and offshore leasing, facilitating and encouraging the use of natural gas and other American energy resources, reversing all Obama's job-destroying executive actions. Mr Trump will reduce and eliminate all barriers to responsible energy production.

Looking at his speeches, there are several other quotes of interest. He has said that he will support the Keystone pipeline and that he supports renewable energy, but not to the exclusion of other forms of energy that right now are working much better. He says that he is very strongly in favour of nuclear energy, and has suggested that an energy policy which reduces CO_2 emissions would imperil jobs in the lower and middle classes, and that sources of green energy are just an expensive way of making the tree-huggers feel good about themselves.

His main adviser on energy matters is Harold Hamm, the CEO of Continental Resources in Oklahoma. Harold Hamm is unanimously expected to be offered at least the job of Energy Secretary, which he may or may not accept because he has his business interests, but he has certainly been very close to Trump. Looking at Trump's speeches, he frequently thanks him personally for his support. He has supported Trump from the very start and is also a source of funding. Therefore, Harold Hamm is someone you will need to become familiar with. He is an entrepreneur who is estimated to be worth USD 11 billion or more, and he is someone who, unlike Trump, initially started from very low social conditions. He is the son of cotton sharecroppers and likes to repeat this, so he sort of incarnates the American Dream, or the Trump Dream, even better than Trump himself.

Hamm has a very clear position of doubling US oil production, not just four million barrels from shale but four plus four, eight, and that is what he aims to achieve – he thinks he can do that with deregulation, and possibly with some protection with respect to imports. That is his attitude – he is saying that Saudi Arabia is attempting to flood the market, but the strategy is not working.

What might we expect to happen? There are six possible developments. First he will probably opt out of the Paris Climate Agreement. Of all the things he has said in the campaign, this is the one that costs nothing to him and is only going to be a plus. He will stop subsidies to renewables, but he will probably not stop subsidies to ethanol, because that touches the interests of the agricultural sector. However, he will certainly play down or eliminate entirely subsidies to solar, wind and so on.

He will discourage oil imports. He could create a wedge between domestic prices and international prices. Therefore, in his ideal world and in that of Harold Hamm, you would have prices in the US around USD 60, and prices in the rest of the world being solidly at 40, so that all the enemies are starved of money and Trump supporters make good profits and production increases Is this possible? Only time will tell.

He will support everything else, coal, gas and nuclear, and there are certainly ways in which he can support the building of new LNG liquefaction plants through instruments ranging from the Export-Import Bank, guaranteed loans and things like that, which can project the power of the US internationally and achieve the level of energy dominance that I mentioned at the beginning. I think that Trump admires Putin, which does not mean that he will be friendly to him, but he admires him and agrees that energy is a powerful political tool, and he will use this political tool in international affairs.

The three main themes of this election, immigration, the fight against globalisation and the fight against elites, were pretty similar to what will probably be the main themes of the coming European elections, and this similarity creates a lot of food for thought about what could be the outcome of these coming elections in France, Germany, Denmark and so on.

We moved to a discussion on the consequences of Trump's election for the world.

First of all, Mr Trump no longer wants to be what we call in French the *gendarmerie du monde* – he wants a better share of the burden, that is for sure, and this message has been sent repeatedly to the member countries of the NATO alliance, to the Asian alliance and to the traditional allies of the US in the Middle East. Talking about NATO, he says the member countries will have to defend themselves, that it costs a fortune to the US, and that he is a big fan of NATO, but the members have to pay up. That creates a lot of uncertainty for a few countries which are very much dependent on NATO and are quite anxious about what will happen.

He very much questions multilateralism, which will be quite challenging, and we do not yet know what will be the US position regarding the UN. He probably will pick and choose between the peacekeeping operations that they have an interest in and those they do not, so my bet is that they will keep some distance from PKOs in Africa, with the exception of the Sudan, because a lot of people in the US are devoted to things in Sudan. However, most probably there will be a lot of distance from PKOs, and that is a big question mark for the future.

Regarding nuclear dissuasion, he says things that are quite contradictory. Firstly, he asked why South Korea and Japan should not get access to nuclear weapons, because so many countries already do, but on the other hand he mentioned that he is not a big fan of the nuclear situation. What he said regarding Korea and Japan might reopen the way to nuclear dissemination, especially if his traditional allies do not feel that they are properly protected by their big ally. The traditional reaction when you do not feel protected any more is either to launch an arms race or to seek new alliances with other allies, and in this case these potential allies could be in Asia, such as China. Look at what is taking place with the Philippines already, and look at what is taking place with Malaysia regarding the willingness to appease China. The same could be said in Europe regarding Russia. Interestingly, one of the first steps President Putin took after the election was to send a message to Poland, asking them for discussions, and a few other countries could be interested in seeking appeasement with Russia.

Following up with some statements made by Trump regarding what he could do in specific countries, obviously Syria will be a marker of what he wants to do, and we will have to pay close attention to that. Certainly he does not like Assad, but quoting him again, Assad is killing ISIS, Russia is killing ISIS, Iran is killing ISIS, and they have lined up because of weak foreign policy. He will probably strike a deal with Russia. He has no interest at all in the moderate opposition and does not give a damn about it.

Regarding Daesh, it will be a number one priority to fight terrorism, and he would like NATO to change its mandate so it adapts itself to this new challenge of our century. He considers that NATO is not fit to fight terrorism and that its mandate should be adapted to that effect. He promised to destroy Daesh.

Talking about the peace process, obviously Israel was very happy with the outcome, and Ramallah was very unhappy with the outcome. He promised that he would very quickly move the US Embassy from Tel Aviv to Jerusalem, that he would be the first one to do that, and he is not supportive per se of the peace process. He most probably will not take a huge interest in the peace process, even if it is considered that they cannot stay neutral on this issue.

Regarding Iran, which is probably one of the most interesting issues we will have to face in the near future, you know what he said already. He called the deal "The stupidest deal of all time". He added that when he looked at the Iran deal and how bad it was for the US, it was a one-sided transaction where they were giving back USD 150 billion to terrorist state, and so on.

What can happen with Iran? The agreement which was struck on 14 July 2015 was endorsed by the UN, so in a way it is not possible to withdraw from this agreement per se. However, we can imagine, on the other hand, that a new set of sanctions would be adopted towards Iran, and at the end of the day the effect would be the same as scratching the agreement, because it will freeze potential business interests towards Iran.

Regarding Saudi Arabia, one might think that because of the fights against terrorism and because of the JASTA legislation and so on, Saudi Arabia might be afraid of the prospect of Mr Trump's election, but it is quite the contrary. They are in fact convinced that it is the best outcome for them. Their Minister for Foreign Affairs has been in Washington for the last three weeks and will stay there because he is most probably trying to find a way to deal with JASTA.

Given the broad picture, the position regarding Iran and that for the Saudis Trump is not a theoretician but someone they can strike a deal with and bargain with, perhaps they will try to find a way to gain a lot of contracts.

Session3: Current Issues

Robert Mabro passed away in August and he is greatly missed, especially in these uncertain times. Nobody understood OPEC better than he.

Regarding the oil market there are two dimensions. The first has to do with flow, whether supply and demand are coming closer, and there is no doubt that they are especially compared to 2015, where sometimes we have seen an implicit stock build of close to two million barrels per day. We are no longer talking about this big number, and the latest data for Q3 2016 is around 300 000 BPD of stock build. Some people would say it is 250 000 and others would say it is 300 000 – it really does not matter in the big system that we have at the moment.

This is one of the dimensions. The other is the overdose of the last quarters, where every quarter since 2015 we have accumulated a lot of stock, and we are now in a situation where we have a lot of crude stock, well above the five-year average, and a lot of product stock as well, again above the five-year average. That is where we stand at the moment, and there is a lot of talk of how we will get rid of all these stocks. However, before doing that, let us go back briefly over how we got there in terms of the flow rebalancing in the market. Oil demand growth in 2015 carried the bulk of the adjustment. Looking at 2015, we had a very strong year in terms of demand growth, at close to 1.8 million BPD year on year.

It is also quite important to emphasise the change in the dynamics on the demand side. It is no longer about China alone – actually other countries like India have grown more than China year on year – and it is no longer about diesel, but actually more about gasoline. This reflects the rebalancing which is taking place not only in the Chinese economy but also the rest of the economy. One thing for sure as we entered 2016 is that oil demand was slowing down, and we are unlikely to see the growth we have seen in 2015, so in terms of the adjustment, demand has done its bit.

Regarding 2016, the adjustment has been carried mostly, as we expected, by non-OPEC supply, and in some months non-OPEC supply decline has been quite large at more than 1.6 million BPD year on year. Despite all of the talk about US resilience, at the end of the day most of this adjustment was carried by US shale. Compared to 2014, the US was growing at 1.25 million BPD, and after some months the US was declining by close to 620 000 BPD, so the adjustment in 2016 has been mainly about non-OPEC and US shale in spite of all of the talk of resilience.

Where does OPEC stand in all of this? The most interesting aspect of this cycle is that not only did OPEC not balance their market, which many people perhaps expected them to do, but it has actually been the main source of growth both in 2015, where Saudi Arabia and Iraq alone added something like 1.1 million BPD in year on year growth, and in 2016, where they were joined by Iran, which has been ramping up production to pre-sanction levels.

It is quite important, in trying to understand Saudi Arabia's position, to look at some of the fundamental principles driving Saudi oil policy throughout the years. One of the most fundamental principles is that since 1986 they will not balance the market on their own. They consider that the way they balanced the market in 1986 was a big mistake, and they will not do this again.

That is why there is a lot of talk about Iran and what is driving Saudi oil policy, but I would say that in 1997 and 1998 they acted in more or less the same way when Venezuela was trying to increase production. They did not allow Venezuela to come in, but increased production above quota, and then the oil price collapsed. This will be their fundamental principle moving forward as well.

Saudi oil policy has been very valuable – they are very practical, very pragmatic people and tend to change their policy based on many factors, some internal, some related to OPEC, some related to the market dynamics. However, looking at recent history, there are three phases which distinguish Saudi oil policy. The first phase was when they increased their production above 9.6 or 9.7 million BPD, and they did that in order to fill an output disruption from Libya and Iran due to the sanctions. This is the role they love to play the most, and that is why they have spare capacity, as they have benefited a lot from this role, and that continued until 2014.

Phase two was the market share strategy, and they decided in the face of a supply shock, particularly a structural supply shock, that the best strategy was to go for market share.

The third phase, which started at the beginning of 2016, is not clear at the moment, because, in terms of rhetoric, it seems that Saudi behaviour has changed and they are willing to cooperate with other producers and all of that, but in terms of volumes, we have seen quite clearly that Saudi Arabia ramped up its production, and at the moment they are producing around 10.7 million BPD. A lot of people argued that this was actually related to summer demand, but the summer demand has gone and Saudi output is still quite high.

It becomes clear that Saudi Arabia is not only targeting production levels but also export levels. They would like to maintain their exports above a certain level, and that level is above 7.5 million BPD of export

What are the main drivers of phase three? We have not seen much change in terms of actual volumes, but at least in terms of rhetoric, we have seen some change in terms of willingness to cooperate. I would say that the main reason for that is that the local economy depends very heavily on oil revenues.

We were used to a mechanism in the past where in a surplus market OPEC would meet together and agree on a cut, and hopefully that would rebalance the market. That OPEC adjustment mechanism is beyond us, at least for now, so that is why I would argue that the current cycle is a very special one, because it is the first cycle where we will see the price impact or the market mechanisms also operating within OPEC. These mechanisms will operate in two ways. The first is the investment output channel, basically what we are seeing in Iraq – what happened is that Iraq did not have the money, they did not have the revenues, so they basically started cutting on the rigs and renegotiating with the companies to cut down investment, and that will eventually have an impact on output.

The other channel is what I call the fiscal crisis disruption channel and is what we see in Nigeria, for instance, where they cannot pay the people who used to protect their pipelines, and all of a sudden you start seeing disruptions from Nigeria, or in Venezuela, where they cannot pay the service companies, so you start seeing output declining.

Therefore, if we think OPEC is needed, these are some of the questions we need to think about. How will they adjust their economies? How will the circle be closed? Should we think OPEC is not needed because of US shale, this actually raises another set of questions. How would OPEC producers behave? You would expect, in a world where demand is likely to decline, these OPEC producers to behave in a fundamentally different way than what we are seeing now, so that actually creates another level of uncertainty. Therefore, unfortunately we have one level of uncertainty upon another. Whatever you think of OPEC, if it is not needed it will create uncertainty, and if it is needed it will create uncertainty. This is the world we are living in, and this is why I would say that this cycle can be distinguished from others.

The discussion shifted from OPEC to the global energy scene

Regarding renewables, the story is quite rosy, because 2015 was a record year for renewables, with the largest deployment to date at more than 150 GW, with 63 GW for wind and 49, almost 50, for PV solar. This has been supported by the drastic cost declines of wind turbines and PV solar.

These days, both PV and wind projects can sell at between USD 50 and USD 30 per MWh, which is a lot cheaper than conventional – gas, coal and oil generation – but this is not dispatchable, so no immediate comparison is possible.

The cost has been declining and there is a better market environment for renewables, but at the same time, when we focus on the future, the role of policies is very much involved with this, especially when it comes to the question of whether renewables can grow in line with the two degree target, this is possible, but is requires quite a stable and predictable policy environment for investors in renewables.

There is gas and coal on the other side, and gas is not growing as quickly as in the previous six years. Regarding coal one notable change from last year or two years ago was that Chinese coal demand finally stagnated and even declined in 2014 and 2015.

Therefore, there is a fundamental shift in robust coal demand in Asia, but at the same time we need to be aware of the fact that, even though China may be going through this transformation with respect to coal demand growth, we still continue to see strong growth in India as well as countries like Vietnam, Malaysia and Indonesia, which are all still building new coal power plants as we speak. Therefore, even though that is not comparable to China, when we face the enormous challenge of climate change mitigation, we see major growth in coal in Asia, and it will continue to be competitive in that region, so it is a very big question mark.

Regarding the gas and coal market outlook, one of the fundamental questions is what will happen to clean power plants implemented but now suspended by the Supreme Court in the US. The Clean Power Plan aims to reduce emissions drastically, mostly by switching to natural gas and expanding deployment of renewables. But there is a lot of uncertainty regarding what may happen.

More fundamentally in terms of the power sectors, one of the big questions concerns how we can create a good market design for the electricity systems. With the higher penetration coming from subsidised renewables, investment in power generation, especially in the area of large-scale projects like nuclear or hydro among other large-scale power generation projects, is becoming much more difficult. Regarding climate change, to meet the two-degree target a lot of investment is needed. We expect that about a third of that can be filled by more renewables, about a third by enhanced efficiency, but the remaining third should be filled by nuclear, CCS and other low-carbon projects.

Another important sector is transport, which is still dominated by oil, with 93% of transport demand being supplied by oil, and that continues to be the case. Electric vehicles are turning out to be a serious competitor to the oil system, a rapid growth of EVs should be possible. However, there is a target for the deployment of 100 million vehicles by 2030, and that is one of the targets used by the initiative related to the Paris Agreement of last year, but even if we achieve 100 million EVs, that corresponds to about two million BPD of oil, so the vast majority of oil will continue to be consumed in light-duty vehicles. We have not seen any substantial replacement for heavy-duty trucks, and unfortunately aeroplanes cannot fly on PV solar.

Regarding Russia, the oil industry was doing pretty well even before Trump's victory. Russia is producing at full capacity, and production last year and for half of this year was more than during the time of the Soviet Union.

Regarding gas production, it is stagnating, but the forecast for 2020 and after shows a much larger level of production, which will go to the Asian market – both from Yamal and

Siberia to China. It looks promising, and it is not only Gazprom production but also production by the independent producers. This year's high level of production keeps exports at the same high level as before, and Russia's latest tactic is to get a better share of the Indian market. Rosneft is very aggressive in this regard. Venezuelan oil is actually coming to India as part of a swap agreement, so I think this Asian expansion is very promising, because Rosneft is strongly supported by the government.

Regarding the gas business, Gazprom is doing pretty well and managed to increase its market share to 31.5% last year, and these low prices are helping Gazprom to push competitors out of the market. Gazprom exports are doing pretty well. They have a new chief, a new strategy, they are restructuring their business, and they are well prepared for the new market conditions.

There was also a big debate about the new pipelines. Nord Stream 2 is on the way, and it is needed by Europe. Following the political settlement of the Turkish problem, Turkish Stream is back on track. The good thing is that there is an end to the big arbitrage dispute between the European Commission and Gazprom, which was blamed for some problems with the Third Energy Package, but now it has been settled, and Gazprom has agreed to resale of its gas by third parties, with Gazprom getting access to the Opal system, making its position in the German market even stronger.

The key point is the end of the Ukrainian transit. Gazprom would like to stop the transit in 2019. Therefore, Nord Stream 2 and Turkish Stream will replace the gas supplies which were coming through this system, even though they were very cheap, as political problems prevented it.

Ukraine has been living for almost a year without Russian gas. The amounts they bought in 2014 and 2015 dropped dramatically, but now they are buying back some Russian gas from Poland. Transit fees for Gazprom are being raised, so a big fight is still going on, and the sooner it is resolved the better.

Finally, regarding the latest news on the Russian market, maybe you did not realise it happened, but Rosneft acquired quite a small company, Bashneft, and everyone expected it to be a competitive bid, but the government stake was given to Rosneft for USD 5.3 billion, making Rosneft a huge oil company which is very hard to compete with on the Russian market. Therefore, very few oil companies are now in the market, and Rosneft is becoming more and more of a monopoly like Gazprom. It was even announced that by year-end Rosneft would be selling its government stake of 19.5%. It is not clear to whom it will be sold and at what price, and there are potential buyers, but it could happen that some new player could buy it, maybe a Rosneft subsidiary company.

Therefore, we now have a very big oil company and it is not entirely clear what will happen to it, but it will be another source of discussion for the coming elections in 2018. That is the situation in Russia.