DEBAT

Nobuo TANAKA

Avant de passer aux questions de notre auditoire, permettez-moi de poser une question à tous les panélistes. Ma question est la suivante. L'énergie renouvelable pourrait devenir un produit courant et il est certain que la demande en carburant s'écarte des combustibles fossiles, quelles que soient les intentions de M. Trump. La demande en pétrole et la demande en gaz pourraient diminuer et le prix du pétrole pourrait passer de 80 dollars par baril à 8 dollars, par exemple. Juste pour les besoins de notre brainstorming ou de notre analyse de scénarios, le bas prix du pétrole aura certainement un impact sur l'Iran, l'Arabie saoudite et le Moyen-Orient, la Russie et les États-Unis pour la production de gaz de schiste. Est-ce que ce genre de nouveau monde avec des énergies renouvelables signifie plus de paix au Moyen-Orient ou à l'inverse, plus de guerres ou de batailles en raison de rendements ou de profits décroissants ? Qu'en pensez-vous, Olivier ?

Olivier APPERT

Premièrement, il est clair que la consommation de pétrole va continuer à augmenter. Votre scénario ne se produira peut-être pas avant 40 ou 50 ans. Je crains qu'entre les deux, il y aura de nombreux conflits au Moyen-Orient.

Leila BENALI

Pour que les énergies renouvelables deviennent des produits courants, vous allez avoir besoin de quelque chose. Vous allez avoir besoin de technologies intermittentes, vous aurez donc besoin de beaucoup de gaz, de stockage, etc. comme nous l'avons mentionné, mais je suis prête à jouer le jeu. Cela dépend du moment où ce scénario pourrait se produire. Donc si vous supposez que ce sera dans 40 ou 50 ans, j'espère que beaucoup de ces pays auront eu le temps de mettre en œuvre certaines des réformes dans lesquelles ils se sont engagés.

Cependant, là encore, il est très difficile de mettre tous ces pays dans le même panier. Votre présentation a montré comment les régions évoluent. Les pays deviennent à la fois importateurs et exportateurs et sont exposés aux prix du pétrole et du gaz de manière totalement différente. Je ne voudrais pas simplifier les choses en faisant une seule déclaration, mais pour certains pays, plus que pour d'autres, il sera impératif de pousser certaines réformes.

Nobuo TANAKA

L'Arabie saoudite survivra-t-elle à un baril à 8 dollars ?

Leila BENALI

Quand exactement ?

Nobuo TANAKA

En 2030.

Leila BENALI

Oui.

Nobuo TANAKA

Et vous, Professeur Cooper ?

Richard COOPER

Je suis Olivier sur ce point. Je ne veux pas jouer ce jeu. Si nous pouvons jouer à ce jeu, nous pouvons imaginer avoir une baguette magique et faire tout ce que nous voulons. C'est de la science-fiction, donc je ne suis pas disposé à jouer à votre jeu. Ou si vous voulez jouer à ce jeu, je suis autorisé à y ajouter d'autres choses également.

Nobuo TANAKA

C'est-à-dire ?

Richard COOPER

Une baguette magique que vous pouvez pointer sur les pays concernés pour leur dire « Restez en paix ».

Nobuo TANAKA

C'est une baguette magique pour la paix. Mon exercice pour ce genre de volatilité est le suivant. De nombreux pays créent des scénarios pour se préparer à des situations de manque de préparation ou à des situations très instables. C'est effectivement de la science-fiction, mais si nous ne réfléchissons pas à ce genre de situations très imprévisibles, nous avons des problèmes.

Richard COOPER

Nous allons payer 35 dollars le baril plutôt que 8.

Nobuo TANAKA

Que pensez-vous des 30 dollars le baril que nous avons envisagés jusqu'à présent ?

Richard COOPER

L'Arabie saoudite survivra difficilement à 35 dollars le baril, mais elle survivra.

Nobuo TANAKA

35 est très facile pour l'Arabie saoudite. Les coûts de production sont beaucoup moins élevés.

Richard COOPER

Huit est impossible à imaginer sans une baguette magique.

Nobuo TANAKA

Voyons quel sera le prix du pétrole en 2030. Qui sait ? C'est un exercice difficile, mais nous devons nous anticiper le manque de préparation. Le Japon a fait face à un séisme et à une crise nucléaire d'une telle ampleur. Anticiper le manque de préparation est très important. Voulez-vous jouer le jeu Masudasan ?

Tatsuo MASUDA

Oui. Je vais développer ce que vous avez dit avec un exemple. Lorsque j'étais directeur de l'AIE en charge des marchés pétroliers, les prix du pétrole sont tombés à un niveau à un chiffre. J'ai reçu un appel de mes amis des pays du Golfe, qui m'ont expliqué à quel point il leur était difficile de survivre. Ils m'ont dit : « Nous pourrons survivre un moment, mais pas trop longtemps ». Si le prix du pétrole devait atteindre 8 dollars le baril comme à cette époque, les énergies renouvelables auraient besoin d'une autre révolution pour survivre. Le photovoltaïque est une bonne technologie, mais elle est déjà très ancienne. Nous avons besoin de technologies révolutionnaires pour rendre les énergies renouvelables plus durables, même dans un environnement aussi difficile. Si cela se réalise, la paix régnera

sur la terre car le système d'approvisionnement et de consommation d'énergie désintégré sera plus pacifique qu'un système intégré. Vu sous cet angle, je partage le point de vue de Tanakasan.

Nobuo TANAKA

Leila a un commentaire supplémentaire.

Leila BENALI

Oui. Avant d'aborder votre chiffre de 8 dollars, que bon nombre d'entre nous désapprouvons, dans mon exposé, j'ai présenté les différents niveaux de ventilation des coûts pour différents pays. Avant d'atteindre les producteurs à faible coût, la Russie, l'Arabie saoudite et d'autres pays, vous aurez d'autres pays qui seront en grande difficulté. L'industrie continuera à ne rien faire avant que cela ne se produise.

Nobuo TANAKA

Et vous, Ladislas ?

Ladislas PASZKIEWICZ

Je vais jouer le jeu. En passant, rappelons-nous qu'à la fin des années 90, le prix du pétrole n'était plus qu'à un chiffre. Ce qui me semble important en tant qu'entreprise, c'est de ne pas considérer que ce sera pour toujours et de tenir compte du fait que la cyclicité existe. La cyclicité est une chose avec laquelle on peut jouer en étant anticyclique, et je pense que cela fait partie de la réponse à la question. Tout d'abord, nous nous rendons compte que même dans le scénario à deux degrés de l'AIE, j'ai mentionné 22 % pour le pétrole, mais c'est environ 50 % pour le pétrole et le gaz. Nous ne devons pas oublier pour répondre à votre question que ce chiffre inclut le pétrole et le gaz, car ces pays produisent les deux. C'est 50 % du mix dans le scénario à deux degrés. Il est assez difficile d'imaginer qu'on parviendra à réduire cela considérablement, mais si c'était le cas, comme cela s'est déjà produit, l'investissement dans la contre-cyclicité est certainement l'une des réponses à la question.

Nobuo TANAKA

Voulez-vous dire que Total survivra ?

Ladislas PASZKIEWICZ

Bien sûr.

Richard COOPER

J'ai une question pour Ladislas. L'un de vos cinq points concernait les biocarburants. Qu'avez-vous en tête exactement ? Les biocarburants que je connais, à savoir l'éthanol à base de maïs et les carburants à base d'huile de palme, sont atroces du point de vue du changement climatique. Quels biocarburants avez-vous à l'esprit comme partie de la solution ?

Ladislas PASZKIEWICZ

Ceux dont nous parlons sont les biocarburants qui sont produits actuellement. Les biocarburants de deuxième et troisième génération restent extrêmement difficiles du point de vue technologique. Cependant, j'ai fait valoir cet argument, car c'est l'un des domaines dans lesquels les politiques publiques apportent une aide actuellement. Du moins en termes d'émissions. Nous ne voyons pas cela souvent.

Il existe des aides au niveau de l'efficacité énergétique, avec certains objectifs obligatoires qui sont imposés par les politiques publiques. Cependant, nous ne voyons pas ce type d'intervention dans la tarification du carbone. J'ai donc pris l'exemple des biocarburants, en soulignant qu'au moins ici, il existe un niveau d'incorporation qui est rendu

obligatoire. Au final, cela aide, même si je suis d'accord avec vous pour dire que l'impact futur de biocarburants supplémentaires peut rester assez limité par rapport à l'ampleur du défi auquel nous sommes confrontés.

Donald JOHNSTON

My name is Don Johnston and I was the Secretary-General of the OECD from 1996 to 2006. I had the pleasure of having Nobuo Tanaka, our chairman, as one of our first-class directors in the organisation. I just wanted to make a few observations. I have been following this dossier for a long time. In fact, I chaired this in Doha, and you were then with Total, were you not? You made a very impressive presentation, as you have. Total is probably quite exceptional in many respects.

We are talking about this. I do not want to be cynical, but we have heard the story so often and for so long, going right back to 1992. There was Rio, and then I came to the OECD. 1997 was the big year. That was the year of UNGA, which is the United Nations general session in New York. I addressed this and we heard about all the terrible things we were going to cure in the next few years. We had Kyoto, which other countries and we had about annexe and non-annexe. Canada for example undertook to reduce its emissions to 1990 levels. It was something like x per cent. In 2010, it abandoned Kyoto because it increased its emissions by 25%. We have seen this right across the board.

What I would just like to say is what you get out of the discussion here. You are talking about mitigation. That was trying to reduce the greenhouse gas emissions, which we have been uniquely unsuccessful in doing, or adaptation. I do not hear enough about adaptation. The fact of the matter is, look at the world today. Look around at what is happening, at the forest fires in the Western United States, at Canada, and at Northern Sweden, above the Arctic Circle with the temperatures and so on. There are the temperatures and so on. You have to think in those terms. I would like to see a talk about adaptation and less about trying to meet these targets.

Nobuo TANAKA

Finally, people are starting to talk about adaptation. That is true.

Philippe CHALMIN

We spoke quite a lot about the long term. Being on the market, I am more short-term minded, and being short-term minded, I would like to have your views about the future of our different commodity prices. I understand that Mrs Benali does not represent Aramco, but I would like to know how much more oil Saudi Aramco and Saudi Arabia can pump in the short term. Can we reach USD 100 per barrel or perhaps more?

We spoke a lot about the price of oil, but I am also struck by the price of natural gas. Natural gas prices have never been so high since the Fukushima crisis and it is a long-term trend. With Ladislas, we spoke about the commoditisation of the LNG market. What is your view on the future? By the way, this was said by Mrs Benali. The price of coal is pretty high, and the demand for coal, be it steam coal or coking coal, is pretty high. We are dreaming about renewables, but on a short-term basis, we are almost in an energy crisis.

Saïd MOULINE

As we are in Morocco, I would like to mention something which was a motion during the debate. We can confirm what we have done in this country, especially about renewables. You heard Mr Bakkoury during the lunch, but the price that we reached on the project on wind is 3 cents per kilowatt hour and 4 cents for PV. It is big power plants produced by private companies and selling at this price to the utility.

It is true that we are working to have 52% of our electricity capacity in 2030 from renewables. It is possible because we have inter-connections with Germany and Spain and soon with Portugal and Mauritania. It is also possible because we have water pumping for storage. We also have melting salt for storage in Ouarzazate and also batteries. We are talking about big projects, but do not forget, small projects, especially for Africa, like PV roofs and PV pumping, which can be used in the whole continent. It is something that is as important as big power plants, and these solutions can also be important.

The last point is this. I head the Moroccan Agency for Energy Efficiency, and the cheapest way and fastest way of reaching these climate indices is through energy efficiency. We should work on energy efficiency in transport, housing, public lighting, and agriculture. We have programmes for that in all sectors. That is also as important as big programmes. That was my observation.

Nobuo TANAKA

Are you from Masen?

Saïd MOULINE

No, AMEE, which is the other agency in charge of energy efficiency. We have two agencies in our energy transition policies, including Masen for the big power plants, which do renewables. AMEE is the Moroccan Agency for Energy Efficiency.

Nobuo TANAKA

Mr Bakkoury mentioned this sustainable energy transmission project with the European Union, Germany, France, and Portugal. That is a very interesting initiative from Morocco.

Jean ABITEBOUL

I am Jean Abiteboul, former President of Cheniere Marketing Ltd, so I will advocate a little bit for gas. On the short term, I do not fully agree with what has been said just now. The price of gas in the United States is very cheap. With the starting of the LNG exports out of the US and with the commoditisation of LNG, I do not believe that the price of gas will go up. It is true that in Asia and in Europe, with the price of gas index on oil, there could be some times when this price will remain high. However, this is very temporary in my mind. Within the next 2-3 years, there will be plenty of new liquefaction projects in the US, which will help the gas prices to become more and more of a commodity price, with more and more of a world price.

On the longer term, first of all, I am not sure I fully understand your curve on the cost of wind, Mr Tanaka. I am not sure these costs will go down so fast. As a matter of fact, today, all the renewable prices are still highly subsidised, especially in Europe. In the long term, if you do not build additional new power plants in the world, the numbers do not square without high development of natural gas. They just do not fly. I am not sure I understand your curve, which mentions peak gas in 2030-35. I am not sure I understand that.

On the storage of electricity, this has been stressed by Mr Cooper. Everybody emphasises batteries. I strongly believe in the future of hydrogen. You can produce hydrogen with electricity outside of peak hours, so practically, the cost of producing hydrogen can be negative or almost zero. You can use hydrogen in fuel sales even in cars. Somebody has said that cars, for mobility, you still need batteries. It is not obvious in my mind. You have a lot of technology of power to gas, to use electricity to produce hydrogen and then inject hydrogen into the natural gas network. You still have plenty of technologies which are under development and which allow natural gas to increase its market share. This is even though the renewables are seen as a solution for everything.

Nobuo TANAKA

Regarding the question about my information, the 2030 peak of gas is still such that the gas is increasing, even with the sustainable development scenario, the scenario of 450. Oil will peak out very quickly, around 2020, and coal will peak much earlier, but gas will continue to grow until 2030 or 2040. However, it will slow down, if a sustainable scenario of two degrees or 1.5 happens, because carbon emissions are still happening.

Olivier APPERT

I will give a few comments and I would like to develop the issue of the oil embargo with Iran a little bit, which is a short-term issue. First, adaptation was part of the Kyoto Protocol, and in the following COPs, it almost disappeared.

Now, as you said, it appears to be quite difficult to cope with two degrees or 1.5. Then it is very important to consider adaptation. I understand that it will be an important part of the next COP in Poland. It is clear that they will not push the theme of mitigation, but it is good news. The second point struck me when we were talking about electricity. I remind you that electricity represents 20% of the problem but 95% of the comments. When we discuss renewable energy, we discuss solar and wind, but do not forget that 80% of the final energy consumption is non-electricity.

I will say a few words on the embargo. The oil embargo on Iran is one important explanation of the oil price now. Thanks to the decision taken by OPEC Plus two years ago, the market is now almost stable, in a good balance. However, on top of that, there is this decision of Trump to set up an embargo against Iran. Regarding the spare capacity, the stocks are at low levels worldwide, so the spare capacity is not so high. The official figure is 2.7 million barrels per day or 2.5, and around 1.8 in Saudi Arabia. My experience at the IEA is that regarding spare capacity, you do not know exactly when it will be possible to get this production. It may take three months, six months, or one year, because it needs some investment.

For me, what is the most challenging thing is the reaction of Iran to this position of Trump. This may create a mess in the Persian Gulf. I remember that Iran's missiles have been tested on the Straits of Hormuz, and if anything happens, it will be totally impossible to load oil in the Persian Gulf. I remind you that the Straits of Hormuz and the Persian Gulf represents 20% of world oil consumption and 25% of the LNG. It is not an increase in the prices. Nobody knows at what level it may come. We may come to USD 200 per barrel, because there is no elasticity on the market. Regarding this situation, those are the comments I wanted to make. I have very specific views on hydrogen. I am not a believer. I think hydrogen is a question of religion.

Nobuo TANAKA

Leila, do you have comments on spare capacity?

Leila BENALI

Regarding the first point, I am not mandated to talk about short-term markets and Saudi Arabia's production policy. Regarding the second point, Olivier Appert has already made all the comments that need to be made about the spare capacity. I want to say something about gas. We can be concerned about what is happening in the oil markets. There was a lot of work being done to bring those 25 countries together in the OPEC Plus Alliance, but there are also some concerns on the gas side.

I agree with the points that were made on the US, but in Europe today, gas prices are USD 3.5 dollar per million in BTU higher than the same time last year. We do not know what will happen this winter. We do not know whether we are going to have a colder winter than average or not. In many of these countries, gas prices are now being reformed and linked to international gas prices as well. That is also an aspect that I wanted to highlight as well in the meantime.

Richard COOPER

I mainly address long-term issues, but since Iran has been raised, do you not think that the 'Iranian problem' will be solved by China? China could take Iranian oil. It is substitutable for other kinds of oil, and China could well set up a clearing arrangement which does not use SWIFT or US dollars at all. Chinese firms operating in the US would have a problem, like Total would, but there are Chinese firms that do not operate in the US at all. Do you seriously think that Iran will not be able to export its 2 million barrels a day, say?

Philippe CHALMIN

What I heard on the market recently is about the Bank of Kunlun, which is more or less the only bank that has a monopoly of relationships between China and Iran. This is owned by CNPC and it has just finished accepting bills by Iran, paid either in euro or in yuan. It is said on the market that for November, no Iranian oil has been bought by either CNPC or Sinopec. That is it. Even the Chinese have problems with that right that you Americans have with the dollar. May I remind you that it did cost USD 10 billion for BNP Paribas?

Richard COOPER

We are talking about November. That is just a week away. I am not talking about November. I am talking about the next few years, and whatever happens in November has almost already happened. However, if I were advising the Chinese government, I could construct a scheme that did not use the US dollar. Nor would it involve Sinopec or CNPC, because they both have business in North America, at least in Canada. However, there is a way to do it, and the question is how imaginative they and the Iranians together will be about bringing it about. There is lots of two-way trade. It is not just oil from Iran to China, but it is Chinese goods going to Iran. It is barter with a little fluid to grease it.

Nobuo TANAKA

The European Union invited China to join that clearing house. Is that right? I have heard that, but I do not know. Let us move to Masuda-san.

Tatsuo MASUDA

I will just make one comment on renewable energy. We talked a lot about renewable energy and storage, but we need a second and third-revolution technology. What we face regarding a technical evolution is that there are two types of valleys of death. One is the technical valley of death, to make new technology able to develop fully. that is one, and there is a lot of shortage of supply of financing. That is one, and the second is the financial valley of death.

Even though there is a demonstration plan ready to go, there is no-one to invest and there is no way to commercialise. Unless we are able to overcome all these valleys of death in technological deployment, we will not be able to have a revolution. Otherwise, we can have a technological revolution which completely rewrites the energy scene. The IEA world energy outlook could be very obsolete in a few years unless they are able to do it. We have to do that, and that is my ending remark.

Ladislas PASZKIEWICZ

I will make quick comments. On the price, in the short term, there are definitely some supportive fundamentals for the oil price, because demand is still significant. OPEC and Russia are well aligned. Then there is one very specific element with regard to the US, where there are some bottlenecks in exporting shale oil by pipe. Probably until the middle of next year, there will be some constraints on the US market. Exports reduced from Iran, and do not forget Venezuela and Libya. There are some countries which still face some difficulties.

This is not taking into account a fact that we have to keep in mind. The level of investments that have been made in the oil and gas industry has decreased very significantly by 2014 and 2015, when the oil price decreased. There have been some impacts that are going to be associated with that. Therefore, it is quite supportive in the short run but, for me, in the short run and the long run, the key word remains volatility.

Nobuo TANAKA

Thank you very much, everybody, and I appreciate your participation in the interesting game I introduced. I hope everybody enjoyed the discussion here.