

## DEBATE

### **Arnaud Breuillac, Senior Advisor to the Chairman & Chief Executive Officer of TotalEnergies**

Thank you, Olivier, and thank you, Isabelle, for your two insightful presentations on two very different security challenges, one on food and the other one on electricity. I open the floor now for questions.

### **Hervé Mariton, Mayor of Crest, France, Chairman of the Franco-British Council**

I had a question relating to the very remarkable presentation made on food. You explained very well how one could give enough food to eliminate hunger. You did not address very much the issue of the impact of agriculture on climate change. As far as I know, it presently represents about 20% of greenhouse gas emissions. This percentage should increase over time, specifically if meat consumption increases, which seems to be the trend, and so I would be interested to hear your thoughts on this issue.

### **Isabelle Tsakok, Economist, Consultant on Agriculture and Rural Development, Senior Fellow at the Policy Center for the New South**

I did not deal with that because it is not possible to deal with the whole thing, but it is really a very important question. It is true that agriculture contributes to greenhouse gases, and there is a whole literature on changing that. There are techniques for changing agriculture to make it climate-neutral, but the key thing there is it requires an enormous investment of research and, in particular, extension to millions of farmers. There are so many ways of doing it, but none of them are easy. They are all knowledge-intensive. You really have to know your soils. You have to invest in it. It is not like throw some seeds in and just hope for the best.

Soil fertility and soil degradation are huge problems, and when agriculture is nonproductive people then try to expand the land and cut down forests. I know there is a big debate about GMOs. Simply put, the Americans are for it and the Europeans are against it, although there are probably nuances somewhere. However, if you only look at the land savings from GMOs it is dramatic. You have to decide what is important because if land and forests are important and you want an increase in productivity you should look at GMOs. There is a lot of information that is required.

I have looked at a lot of surveys of consumer response to GMOs in Europe, in China and in the US. Number one, most people do not really know what is involved. It is a complicated thing. Information is critical. A lot of them say things like, "Well, some people are anti-science". What the surveyors point out is that a lot of the resistance to GMOs is based on non-information or misinformation. It is the same thing we have now with Covid-19. People are

against vaccines for I do not know what reasons. They will become this, they will become that. Obviously, I am not sympathetic with it, but it does show that the world is becoming so complicated that people need to know. We need to inform them.

To answer your question, agriculture does contribute to warming the climate, especially livestock, and so some people say the way to do it is everybody become vegetarian. This is easier said than done. India is mainly vegetarian. Does it not have a climate change problem? The point is we are getting into a world where there is no single silver bullet: only do this and the world will be fine. Like Peter Timmer shows and like all research shows, you need so many things to line up, and that is the difficulty we face. We need a lot of information. We need collaboration. We need people to understand. You need to be able to work together. Sometimes, frankly, I am a little pessimistic whether we can make it the way we are going.

From an economist's point of view, we need to have incentives for people to do it. You are not going to command people to behave properly. That just does not work, even if you are authoritarian. I looked at the survey in China on GMOs. China is very pro-GMO because it is a land-scarce economy and it believes in science, so the government has invested a lot. However, when it comes to the survey a lot of people are against it. What do they do therefore? They did not make the effort to explain to people, to get people to adhere to it. It is, "Do it because I tell you so". Well, people will buy what they want to buy. You cannot force them.

However, that is just one instance of changing the technology to be climate-compliant or climate-friendly or climate-resilient, and we did not talk about the problems of climate change, such as all the floods, the droughts and the landslides, which really emphasize that technology transfer is critical. However, technology transfer is not in a vacuum. People are starving. They do not care about climate change. They are going to die tomorrow. What is the problem with climate change? That is 10 years from now. "I am dead already". We are now faced with what are called wicked problems. We have been pushed in a world in which things are becoming more and more complicated and people are getting more and more assertive, rightly so. It is not a matter of blaming people.

If we want to do something we really have to look at and reconsider our incentive system. Incentives do work. We know everybody wants to be better off. It does not matter what religion you are, whether you are a man or a woman or whatever, everybody wants to be well off or better off. The poor are the first people who really want to be well off. Give them incentives and then give them tools to help themselves. I am referring to an expansion of government in terms of improved delivery of services in education, health and global public goods. Before the pandemic we talked about national public goods and now we have to talk about global public goods. There are no simple things left to do. We really have to reconsider our institutions. Sometimes crises are actually great times because people will change because they know they have to change.

### **Mariam Al Mheiri, Minister of Climate Change and Environment, United Arab Emirates**

I just want to add something. I think it is really important that we look at ourselves. I think it is very easy to say, "We need to do this, we need to do that", but I often ask, "What are we actually doing at home?" Maybe we should think of reducing how much meat we are eating,

how many dairy products we are eating. Maybe we should look at portion size again. Maybe we should make sure no edible food goes into the waste bin. I always tell people it actually starts with us. We are the pullers of these food systems at the end of the day, and it is very easy to think you are far away from it when actually you are part of it. It is actually a personal thing now and each and every one of us needs to take that time, and I think a lot of us have during Covid.

Many of us have changed our habits. Many of us started actually growing foods at home. Many of us started thinking a little bit more about what we are spending, how much we are spending on food. I was eating out a lot before, but now we have started to do a lot more home cooking. I am always talking about food loss and food waste, so I said, "You know what? I need to check at home how much food is ending up in the bin". I think each and every one of us needs to take that responsibility and it will cascade because our kids and their friends will be influenced by it. How many kids now come home and say, "Actually, this is not good and that is not good", because they are also looking at it from school? I just wanted to add that point that this is a personal thing now as well.

### **Arnaud Breuillac**

Thank you. That is very useful.

### **Karl Kaiser, Senior Associate of the Project on Europe and the Transatlantic Relationship, Belfer Center for Science and International Affairs, Harvard University**

I have a question on electricity if I may come back to that. The presentation of these facts leads to only one conclusion, that Europe is going with an open eye into a period of blackouts. You have pointed out possible countermeasures, but my question to you is: where are we on the countermeasures? Perhaps Peter Handley can help us with what the European Union is doing, but this is a rather depressing picture that you have painted.

### **Olivier Appert, Chairman of France Brevets, Scientific Advisor of the Energy Center of Ifri, former President of the French Energy Council**

As I explained, it is a challenge in Europe. In fact, in Europe there was no problem because there was a surplus of capacity and that is why with the opening of the market the price dropped. However, unfortunately, this surplus of capacity has been weakening and the dispatchable capacity has been replaced by renewable energies which are intermittent and difficult to dispatch, but this situation is not unique in Europe, as I explained by reference to information from the IAE. It is a concern all around the world. There are some solutions. In fact, in France a study has been done by the French TSO with the IEA on how to deal with a power mix of only renewables by 2050. In fact, it is possible, but conditions are so drastic that it seems rather unrealistic.

There are therefore different solutions. I listed these solutions. Anyway, there are uncertainties because the technologies are not available. Some technologies are not available and are still in development, but anyway it is very expensive. I will take an example. I was told by the President of the French Regulator that just for the transmission network and the distribution network the investment related to the change represents around EUR 100 billion over the next 10 years. Technology can do anything, but we need to have a business model, and it is



absolutely mandatory to also have a price signal. Industries may invest in new flexible technologies, but they need to invest for the decades to come and they want to know what the general framework of the electricity system and the energy system will be in the next two or three decades, and it is not the case because the market is only a short-term market and gives the price for today and tomorrow.

**Arnaud Breuillac**

Thank you, Olivier.