

COSMIN GHITA

CEO of Nuclearelectrica, Romania

Nobuo TANAKA

Let us move to Cosmin.

Cosmin GHITA

Thank you very much for this opportunity to be part of this panel. My presentation will shamelessly advocate nuclear energy.

Nobuo TANAKA

Why is it shameless? It is zero carbon.

Cosmin GHITA

It is zero carbon.

Nobuo TANAKA

You must be proud of it.

Cosmin GHITA

That is why I am very proud. I will start with some figures. Today's realities call for immediate action, and based on IEA data that was vehiculated here, energy consumption worldwide grew by 2.3% in 2018 alone. This is nearly twice the average rate of growth since 2010, so we are seeing an increasing demand for energy. As a consequence of higher energy consumption, energy-related CO₂ emissions also increased by 1.7%, at 33.1 gigatonnes of CO₂.

Therefore, we are nowhere near the Paris Agreement, and to be honest with you, we will be very far away from it for a long period of time. As an important percentage of CO₂ emissions is energy related, the pace of transitioning then becomes even more difficult. From my experience in the nuclear industry, two major variables need to be addressed very fast. These are investments in clean energy sources and related financial campaigning. This may mean campaigning as a PR initiative supported by the governments to bolster investor confidence in these investments. Or, as Leila indicated very well earlier, it could mean coming up with risk-hedging mechanisms to make the opportunities attractive enough in today's capital competition.

The World Energy Outlook estimates that around USD 1.1 trillion will be invested in nuclear power by 2040. This means approximately 46% of nuclear power output. Even though the WEO estimates an increase in nuclear power investments, globally, nuclear generation will go below 10%. This is far less than the required output of nuclear production as per the sustainable development scenario that was shown previously by Mr. Appert.

I will take a little bit of a look at Europe. Based on the EU directives of the 2030 Framework for Energy and Climate Policy, there is a need, at least at the European level, to reach the targets for decarbonization. This is through the means of technology neutrality and common efforts in the application of efficient support mechanisms. This is in areas where market challenges hamper major investment projects as a transition to sustainable clean energy.

This is where I am. I am a strong advocate for the development of nuclear energy as an important contributor to a stable clean energy mix and as a solution for the baseload of a clean energy mix. This can not only be achieved by new builds and long-term operations of refurbishments of nuclear power plants. It is more by extending innovation into



research for Generation IV projects. These are the new types of nuclear reactors that also allow for flexibility and allow for possible hybrid nuclear renewable systems. You can have a small modular reactor coupled with a solar panel and two windmills, and they can balance each other out very nicely.

I can tell you that Romania very much endorses this approach. That is why they are supporting the R&D project for a new lead-cool-based reactor Generation IV reactor. That is why we are looking at other new technologies such as the molten-salt reactors in France or NuScale in the US. That is why we are part of the Clean Energy Ministerial approach, the NICE Future initiative that promotes the benefits of nuclear. It is an international branding exercise to brand nuclear as green energy. That is part of the reality that we need to face.

To endorse that, I will make a quick allusion to an MIT study about decarbonization that was launched in 2018 I believe already. It adds that nuclear energy is a firm source, essential to achieving a deeply decarbonized electricity sector. For most regions, the EU included, meeting the 2050 targets requires a mix of resources, mainly firm resources, a fact which should be fully accounted for in decarbonization policies and meeting targets.

Policies that foreclose a role for nuclear energy directly impact investments in nuclear energy and directly increase the cost of decarbonization. Policies that support decarbonization via a single source directly impact not only the cost and pace of decarbonization, but also markets, generators, energy systems and end consumers. I will invite you to look into the study, because they do a very good demonstration of this thesis.

Out of that, I have extracted from the World Nuclear Association what the world would look like in terms of emissions without nuclear. In 2018, the world was supplied with 2,563 terawatt hours of electricity from nuclear sources. If we did not have nuclear power, and say we replaced it with coal, we would have an additional emission of 2,276 million tons of CO₂. If we were to go to natural gas, we would be looking at emissions of 1,278 million extra tons of CO₂ per year. That says a lot.

A few years ago, financing was the last thing to consider, but now, it is the first. A few years ago, we were thinking about depoliticization, whether we shut down or not, and security. We have proved that nuclear safety and nuclear security are evolving a lot, and with the new technologies, we are right there. With this realization under COP24, a lot of the governments are looking, turning back and reconsidering nuclear as a green source of energy and branding it as such. Or they are taking policies, not for green sources but low-carbon energy, which is probably the more scientific way to frame a policy. Then it is up to us companies to do our job.

Unfortunately, we cannot raise a lot of money for nuclear if we do not have state support. Derisking nuclear is paramount, and that is from the initial stages of a project. A nuclear project has three risks that need to be looked at. The first one is construction risk, and we have seen recently that a lot of projects have gone over budget and are not necessarily on time. A lot of the large companies, service suppliers such as Westinghouse or SNC Lavalin, can do it. Even a number of the South Korean and Chinese nuclear companies are pulling out of the lump sum turnkey PC model.

We know that a lump sum turnkey PC contract led to the reorganization of Areva. This says a lot about where we are in terms of construction. That has more to do with the way in which we manage costs, and the services have become more efficient. Governments need to be part of the solution and financial institutions need to be part of the solution to come out with surety bonds or ways to finance, also through consumer-driven needs. There are these types of new builds. For example, I would like to put the regulated asset-based model in the light, and the contract for difference model that is being used by Hinkley Point in the UK.

The second part, which becomes more interesting here, is regulation, regulation in political risk. This is probably the number-one risk that is pushing investors away from nuclear projects outside of the construction risks, and from putting equity into nuclear utilities. This is mainly due to the fact that nuclear is highly regulated. It has also become over-regulated if I were to say so. You need a weight of paper as heavy as a nuclear spare part to move nuclear from one point to another. We have exaggerated a little bit on the nuclear safety side. We are not saying that the processes are bad, but the bureaucracy around it has made it a little bit impractical.



With each element of bureaucracy that has been layered up, you hire more people and you print more paper, and that drives OPEX even higher. That has a financial impact on the project. Here is more of a governance approach in how they manage bureaucracy, but it is also depoliticizing. Say you have invested in nuclear. You had an equity stake in a nuclear power plant that was put in a function in 2008 in Germany. In 2010, you have just finished your construction. As a fund manager, you are looking to get a 20-year return on it. In 2012, the second year of operation, your plant is shut down because of a natural disaster that had unintended consequences, and did not necessarily verify.

A problem in the nuclear industry was spun off in a political campaign and then created a shutdown for nuclear. This is not only in Germany but mostly in Europe. We have to be pragmatic about it. Up until two years ago, the European Commission was afraid to say the N word, and here, we are talking about nuclear. Secondly, we also had a very difficult time, as we have had a full industry shutdown. The new focus should stem from aligning economic welfare with the long-term interests of the society. We are talking about decarbonization and we are talking about security of supply and maintaining our lifestyle. We still want to have zero emissions, but as Professor Masuda said earlier, we still like it to be cool in this room, and that is very important.

Nobuo TANAKA

Thank you. There are lots of uphill battles for nuclear. I cannot agree more. It is tough. Following the Fukushima accident, it is really challenging.