

## Session 2

### Decommissioning and waste management

**Massimo Garribba**

Thank you Ann for this introduction. You will not be surprised if I start by saying that nuclear safety is a key priority for the European Commission and I was very pleased to hear the presentation from ASN right now because we have 93 shutdown reactors in the EU according to our PINC in 2017 and we estimated another 50 to be shut down by 2025. Whereas everybody talks about immediate dismantling, the evidence, let me say, is rather different, I can count only three declared fully decommissioned reactors in the EU today (all in Germany).

Now, safe decommissioning is a threefold challenge:

- it's a political/societal challenge because you need to have timely transparent and appropriate treating of the issue;
- it is a technical challenge because you need to know what you are doing in order to do it safely; and
- it is a financial issue because you need to have all the money that is needed to carry out the operations beforehand.

From our side, in the framework of the next financial period, we have put forward proposals to continue supporting the decommissioning programmes in Bulgaria, Slovakia and Lithuania with two aims:

- One is to continue decommissioning in a safe way and, let me say, in an efficient way, and second, which I think it is an essential ingredient for the development in Europe in the next coming years, is knowledge sharing and transfer of this knowledge because, if not, for each of the 93 reactors we are restarting from zero. This will cost lots of money to each and every one of us. Hence, I think that the first call has to be on ENSREG to work on this topic and to support standardisation of decommissioning approaches.
- The second point I would like to make is that, broadly speaking, decommissioning is a mature technology with some black spots. One major black spot is that there are 39 graphite core reactors in the EU which are closed down, which need to be decommissioned and for some of them, we have the timescales as the one that I have heard put forward by the ASN before. I think that this is a core challenge, the handling of graphite, it is a 'first-of-a-kind' issue that has to take our attention in the next coming years and we will do that in the framework of supporting the dismantling of the Ignalina reactors.

I mentioned financial challenges and I think that one of the key issues on financing is the transparency of the accumulation of funds and their availability at the moment when they are needed. We have been working with ENSREG on that but we have also been working with another group which is called the Decommissioning Funding

Group and we regularly interact with the international agencies, the IAEA and the OECD/NEA, on this subject.

And of course, there is one extremely important pre-requisite, which is the opening of the waste routes and in this sense the national plans and the national programs which are due under the Nuclear Waste Directive are an important obligation for the Member States to fulfil so that there is a coherent overall picture between where the waste goes, what decommissioning needs to be done, et cetera.

Those of you who read the Commission's report will have noticed that we published in 2018 the progress on the three decommissioning programs in the period 2014-2017, and there has been quite a bit of progress since 2013, I think that in Slovakia, we are at the most advanced point with a schedule which firmly points to finish the decommissioning to brown field by 2025.

Bulgaria follows in 2030 and there is good experience sharing which is going on between these two plants, which are of the same nature, and Lithuania that intends to complete it by 2038.

In Slovakia, all four cooling towers are now demolished (if you look at the website of the Commission there is actually a picture of the Bohunice site that shows the site when it had eight cooling towers, be reassured, it has four by now). It is quite impressive if you look at it, but far more important, the internals of the reactors are being dismantled and decontaminated at the moment.

In Bulgaria, we are a bit behind as I said, we are starting now to move fully in the controlled area, whereas all the rest of the turbine hall is dismantled and we are testing an important piece of equipment which is called the plasma melting facility, a technology that reduces the volume of nuclear waste up to a factor of twenty. The key question we have to answer is whether this is an economically viable technology to be used in waste management.

In Ignalina, I am very happy to mention the fact that the two reactors are fully defueled and that defueling of the fuel pools associated is actually going ahead of schedule. I think that the opening of the waste route there was the key element that actually allowed this operation to move forward.

So let me just conclude by saying that decommissioning is not an uncharted territory, it is a well-known field, with some unknowns. I think graphite is the biggest challenge that we have and that we need to solve, it is a key issue for the long-term protection of environment and society, and as I said I think that we should spend more attention concentrating on standardisation of approaches and knowledge sharing.

I think that we can take this up in the discussion afterwards.

Thank you very much.