



OPENING STATEMENT AT THE MPR USER WORKSHOP

DELIVERED BY

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DEPARTMENT OF MINERAL RESOURCES AND ENERGY**

ON THE OCCASION OF THE

NEW MULTI-PURPOSE REACTOR PROJECT USER WORKSHOP

PRETORIA

24 OCTOBER 2019

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Professors, Doctors from Universities and Institutions

Mr Emmanuel Montwedi, Deputy President of South African Young Nuclear Professional Society

Distinguished Delegates

Good Morning to all of you.

It gives me great pleasure, on behalf of the Department of Mineral Resources and Energy, to extend a warm welcome to you all.

Although this is a user workshop at an early stage of a project, I address you today because I wish to emphasise the importance of this project for South Africa, the African region, and the world at large.

Ladies and Gentlemen, we need to recognise where we stand today in the world of nuclear technology and its application in everyday life. From over 200 research reactors worldwide, SAFARI-1 is one of the top 3 utilised and operated research reactors in the world.

To understand this in context, I will take you back to the times just after we became a democratic country in the mid-1990s.

At its peak, the Atomic Energy Corporation at that time had over 8000 employees working on it, and over a couple of years during the 1990s it was reduced to less than 2000.

The cost of funding Necsa was far more exorbitant than today and this was used as a driver to motivate for its shutdown. During 1996, an expert panel was appointed by the then Department of Arts, Culture, Science and Technology to review the AEC and provide a recommendation on the way forward. This is word for word what it said:

The Safari's use is mainly commercial. On the basis of the information available to the Review Team, future income will not be able to cover running costs and the case for continued state support is not very strong. Available evidence points to its closure. There may be some political implications in terms of the IAEA AFRA programme. A detailed study is required to determine the implications of closure, including D&D costs and responsibilities.

Ladies and Gentlemen, the people working at Atomic Energy Corporation that time saw this and had two options, pack their bags and just watch this national asset being closed and everything they worked for dissolve away, or try to salvage what little hope they had. It is an untold story about how they got their act together. Of course there were some elements of luck, but by far the overriding factor was the hard work and determination firstly to survive and secondly the belief that they could do it.

In just a few years they developed silicon ingot irradiation and started isotope production and were able to just earn enough to adequately cover the running cost of SAFARI-1 reactor, which at that time was a rare feat compared to similar facilities worldwide. As the medical radioisotope market continued to grow, Necsa grew with it and continued developing products more efficiently and economically until where we are today.

Indeed the last couple of years have been challenging with the unexpected shutdowns of Molybdenum production. However, the SAFARI-1 reactor is still fully operational and ready to serve.

That is only part of this story. In parallel, realising the need to extend socio-economic benefit of this reactor, there has been developments on the research and development applications of the SAFARI-1 reactor. Engineers and Scientists at the facilities, ever so curious also started building up material probes such as neutron diffraction, radiography and other neutron scattering instruments. The applications of these are manifold – in industry we look at behaviour of hydrogen fuel cells, strength properties of railway line welds, and archaeological artefacts to name but a few. All of this done non-destructively. Many PhDs and Masters Theses have been developed through the use of neutron scattering instruments at SAFARI-1 reactor. Many scientific publications have also emanated out of their use. Take note that these numbers are a fraction of what can be achieved at other research reactors which have focused on the scientific research aspects. Going forward our multi-purpose reactor must take into account the potential of growing our neutron scattering capability and user community to get to international levels.

Nevertheless, with some of our top researchers in the world, we have developed in the niche area of neutron diffraction, two world class instruments that compete with the best in the world. These comprise of some of the world-class neutron diffraction instruments developed here at Necsa.

Some of you already know that just these two instruments have at least ten Universities as active users in more than 20 applications. Imagine if we had more than 10 such instruments as most of the better equipped facilities in the world have.

Over the years Necsa established and grew a core competency in theoretical and experimental reactor physics, vested in the Radiation and

Reactor Theory (RRT) group inside the Research and Development Division at Necsa. Their flagship product is a computer code named OSCAR (Overall System for the Calculation of Reactors). OSCAR is internationally recognised, and is used, under license, by other international groups.

Ladies and Gentleman, as I have said previously, success does not come without hard work, dedication, and overcoming challenges as those before us have done. There is a huge risk that if we do not actively pursue users, clients, and application of the new Multi-Purpose Reactor, the asset could be underutilised. We need to recognise that and this is one of the reasons why we have called on this workshop. We need to hear what the users have to say. We also need to be considerate of other options and how we can best manage expectations and pursue the most optimal approach for South Africa. The last thing we would want is to expend our resources on a technology or infrastructure that is deprecated in a few years' time. I urge the officials at Necsa to be on the edge of their seats, and work on this project with unwavering dedication.

On that note we need to recognise we are not the only ones planning a new research reactor in the world. There are a couple of new ones coming up in Europe, South America, Asia and even on our own continent. Competition is growing, and at the same time making our mark early will ensure we are not left as the country of last resort. We need to speed up progress and get to the finish line first.

These challenges of competition also present us with opportunities. Partnership opportunities. Our capability to design reactors such as the PBMR must not be forgotten, and we also have been doing simulation of reactor behaviour for decades. Further our proven capability to operate

the SAFARI-1 reactor after 54 years is world renown. There is potential here not only to develop most of our MPR locally, but also become a formidable player in the supply of such to other new projects that are developing as we speak. We do not see ourselves as only consumers of technology, but also developers. The Task Team is looking at all these options.

Ladies and Gentleman, I am sure you would agree that SAFARI-1 is the heart of Necsa and Nuclear Technology in South Africa. It has propelled us from the situation of almost being a non-nuclear country to a leader in nuclear technology globally, where its products are being used to save lives on a daily basis.

I wish to ask all stakeholders in this workshop, especially the youth to see yourselves as champions of developing this project through hard work and dedication.

Last but not least I also wish to acknowledge the Task Team for all the work thus far in preparing the Project Initiation Report which is at a very advanced stage of development. I also thank them for organising this workshop and wish you all the best with the rest of the workshop.

I thank you