Speech by Miguel Arias Cañete, Commissioner for Climate Action and Energy, to the conference *Addressing Societal Challenges through Advancing the Medical, Industrial and Research Applications of Nuclear and Radiation Technology*

(check against delivery)

Commissioner,
Director General,
Director,
Ladies and Gentlemen, dear colleagues,

Let me start by welcoming you to this first-of-a-kind event on Medical, Industrial and Research Applications of Nuclear and Radiation technology. Although this is not widely known to the general public, the non-power application of these technologies is a success story Europe can be proud of.

Indeed, our continent hosts a wide range of advanced research centers and laboratories specializing in this domain, as well as world-class industrial champions and innovative Small and Medium-sized Enterprises. This dynamic environment makes **Europe a world-leader in developing and exploiting ionizing radiation technologies for the benefit of citizens and society**.

But there is so much more we can achieve. Building on this leadership position, and through adequate policies at EU level,

we can ensure the safe development of these technologies and further improve the quality of life of European citizens, while generating employment and economic growth.

If we want to be successful, we need to work across traditional policy boundaries, bringing together cross-cutting expertise and coordinate policy actions in the fields of health, research and industrial policy. By putting in place legislation to protect citizens, workers and patients who are exposed to radiation, by providing an appropriate framework for the handling of nuclear waste. Or by supporting research and innovation, allowing ideas to be developed and tested.

I would like to focus my introductory remarks on three key points:

1. First, the economic and societal benefits of nuclear and radiation technology outside of the energy sector;

2. Second, the challenges facing these technologies;

3. Third, how EU policy can help reap the maximum benefits from these technologies.

1. Economic and societal benefits of nuclear and radiation technology outside of the energy sector.

Ladies and gentlemen,

When it comes to the non-power application of nuclear technology, **health applications** are the most commonly known, bringing enormous **improvement to the quality of life of our citizens**, but also important **economic value** and contribution to **jobs and growth**.

The European market value of the radiological, electromedical and healthcare IT industry is estimated to be worth up to 20 billion Euros. With a global growth rate of up to 10% and significant investments in research and development, medical imaging is **among the most innovative and dynamic industry sectors, opening a huge export potential for the European companies**. The ionizing radiation applications in medical imaging and radiation therapy underpin 700,000 hospital jobs in the EU.

Every day, more than one and a half million EU citizens undergo radiological medical or dental procedures, advanced computed imaging representing almost 15% of this number. Half of the 2.6 million new cancer patients per year in the EU will receive radiotherapy as part of their treatment, and exciting

new developments are taking place right now in molecular and proton therapies.

Beyond the medical field, nuclear and radiation technology has **many diverse applications in various industries, in agriculture, in protecting the environment and in other domains**, within the EU and beyond.

In the area of security for instance, which is one of the top priorities on the EU's political agenda, nuclear and radiation technology deliver practical **solutions to prevent and combat organised crime and terrorism** and secure the EU borders by air, land and see. These applications have a huge development potential.

Another telling example is that of particle accelerators, where the EU benefits from a strong research and manufacturing base. Recent advances in this technology have the potential to further benefit **many environmental applications, such as treating potable and waste water,** removing pollutants from stack gases, treating medical waste, conducting environmental remediation of hydrocarbon contaminated soil and conversion of fossil fuels.

This area witnesses a quickly growing industrial use, with more electron-beam accelerators to be installed in the next 5 years than during the entire history of this technology spanning more

than 50 years. Globally, the applications of accelerators underpin over 400 billion euros-worth of trade every year.

2. Challenges facing the development of these technologies

But this success story can of course only continue if we address the specific challenges arising from these technologies.

First, we need to **ensure that the supply of radioisotopes is secured in a long-term at an affordable cost for patients**. As the Council pointed out on several instances, the ageing of research reactors throughout Europe is an issue which has led to several crises in the supply of medical isotopes, leading to cancellations and delays of diagnostic tests and medical treatments. Another looming challenge is that the United States may no longer guarantee the supply of uranium for research reactor fuels in the near future and there is a **real threat that we become dependent on a very limited number of third countries**.

We need research reactors and other production capacities in place which will maintain production in the decades to come. We need research investment to look at new applications and new production methods. We need the products registered under pharmaceuticals legislation. And finally, we need health

policy to ensure sustainable funding – while fully respecting radiation protection requirements!

3. The role of EU policies

The supply of radioisotopes for medicine is a key area where **we are committed to delivering solutions at EU level**. Thanks to the extensive work done by the **European Observatory on the supply of medical radioisotopes** to monitor developments in the supply chain and to ensure quick coordination across reactors in case of problem, there has been no major shortage of isotopes in Europe since 2010. This is a true European success story!

In addition, a range of EU policies play a significant role in the present and future applications of nuclear and radiation technology.

Controlling radiation exposure in medicine is a key area where EU policy delivers concrete benefit. The latest revision of the Euratom Basic Safety Standards Directive achieves tangible progress in this respect through strong requirements to develop imaging guidelines and diagnostic reference levels, to provide better information to patients and put in place strict follow-up rules on accidental radiation exposures.

The safe management of spent fuel and radioactive waste arising from the use of these technologies, as well as minimising waste generation are also crucial to ensure public acceptance. The Euratom Spent Fuel and Radioactive Waste Directive establishes **strict requirements for the safe long-term management of radioactive waste and spent fuel** and makes national policies and programmes, periodic self-assessments and international peer reviews, as well as reporting to the Commission mandatory.

As for the revised Nuclear Safety Directive – drawing on the lessons learned from the Fukushima nuclear accident and the EU stress tests, it has introduced an **ambitious nuclear safety objective, enhanced transparency requirements and reinforced the independence of national nuclear safety regulators**, all of which is also relevant for non-power applications of nuclear technologies!

Maintaining Europe's lead position in the development and implementation of nuclear and radiation technology also requires **support for research, technological development and innovation**. In recent years the European Union has provided tens of millions of Euros in direct and indirect support to research in radiation protection and development of new medical technology, radioisotope treatments, accelerator applications and research reactor fuels. Future research

programmes will continue to support the development of the most promising of these technologies, seeking synergies between different directions of research, such as between nuclear and health.

Conclusion

Ladies and Gentlemen,

As you have understood, many of the issues surrounding these complex technologies – such as the need to control radiation exposures in medicine and to secure the supply of medical radioisotopes – can only be resolved if we coordinate **action across policy areas. This is how we can realise the full societal benefits** of medical, industrial and research applications, while **guaranteeing the highest level of quality and safety.**

Medical, industrial and research applications – if delivered to a high standard of safety and quality – bring many benefits to citizens and society. Nuclear technologies raise specific concerns, and we are addressing these adequately through EU policy. We are committed to continue doing so as these technologies develop, through cooperation at European and international level.

Thank you.