IAEA Scientific Forum:
“Nuclear Power and the Clean Energy Transition”

climate – as with fission technology. And the fuel for fusion is virtually unlimited, with enough to supply human society for millions of years.

So am I advocating for an immediate shift away from fission to fusion power? The answer is no, because, first, they can easily co-exist, and second, fusion development will still take some time. The science and engineering challenges of creating an industrial-scale Tokamak – a magnetic confinement fusion reactor– are significant, requiring several decades. But to have this option available in the foreseeable future is everyday more credible.

Since 12 years, the seven ITER Members – China, Euratom in Europe, India, Japan, Korea, Russia, and the United States – are working together toward a common goal: to make hydrogen fusion a credible option, and to ensure a large appropriation of the fusion technology by all ITER Members, Each member is contributing a selected portion of the high-precision components that will make up the ITER machine. During the past 7 months, despite the challenges of the Covid-19 pandemic, these components have begun to arrive - from all over the world – to the ITER worksite in the south of France. On 28 July this year, we celebrated the start of the Tokamak assembly.

Recently, we have successfully inserted the Cryostat Base and Lower Cylinder – two high-precision components 30 metres in diameter and weighing a combined 1,650 tonnes – into the Tokamak Pit, with a precision of millimetres. We have also begun the pre-assembly of the first Vessel Sector with the Thermal Shield and Toroidal Field magnets.

The next few years will be critical at ITER as we assemble the machine and prepare for integrated commissioning and initial operations: First Plasma in 2025, followed by a staged approach until we reach Full Fusion Power in 2035.

Based on the remarkable advancements in fusion science and engineering, and the multinational commitment to success, I feel confident that we will solve the remaining challenges and make fusion a reality on schedule. Some time remains before we will be ready to construct the first commercial fusion facilities, but we are closer than ever.