NUCLEAR NETWORK AFRICA

THE WORLD OF NUCLEAR

G20 NUCLEAR MEETING NEAR DURBAN
DR KELVIN KEMM

HEATHER TALKS TO MARTIN MAINE OF AQUAJET PROFILES

AND MORE.....

N²A HIGHLIGHTS

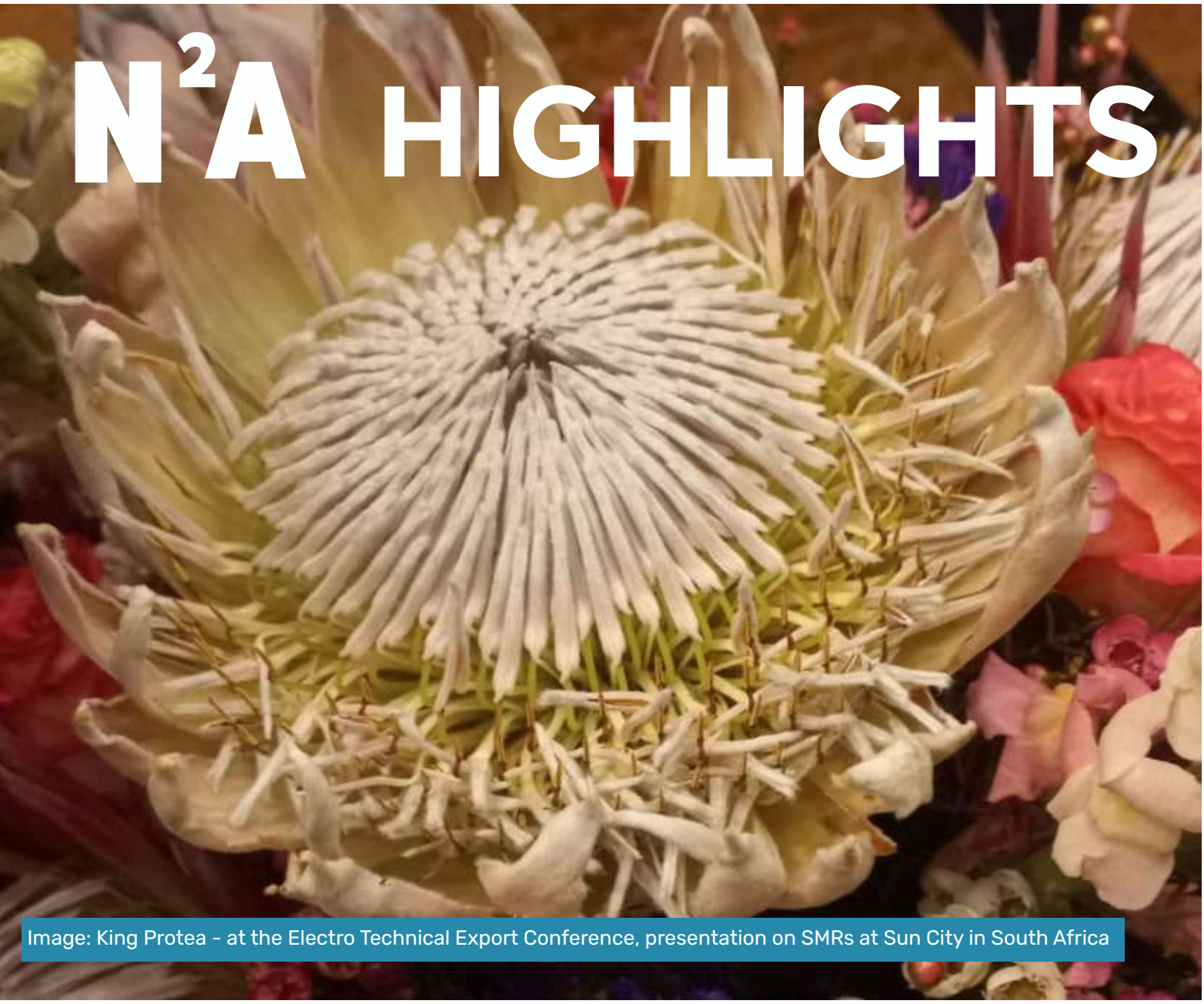


Image: King Protea - at the Electro Technical Export Conference, presentation on SMRs at Sun City in South Africa

FROM THE EDITOR

Welcome to the October edition of N²A – Nuclear Network Africa Magazine, where we shine a light on Africa's growing role in the global nuclear landscape. This month, I had the pleasure of speaking with Martin Maine of Aquajet Profiles (Pty) Ltd about the remarkable precision behind water-jet cutting technology. As Martin explains, high-precision cutting plays an essential role in the manufacturing processes that support advanced engineering and nuclear applications. It is often a quiet but vital contributor to quality and safety across the industry.

We also feature a thought-provoking piece by Dr Kelvin Kemm on the first-ever G20 Nuclear Ministerial Conference, held near Durban, where Africa took its rightful place in global nuclear discussions.

Additionally, we examine the newly released roadmap for nuclear-powered shipping by Lloyd's Register, which outlines how nuclear propulsion could revolutionize maritime transport in the decades ahead.

Highlights from World Atomic Week in Moscow reveal how international collaboration continues to drive innovation, with Africa increasingly recognised as a partner in progress.

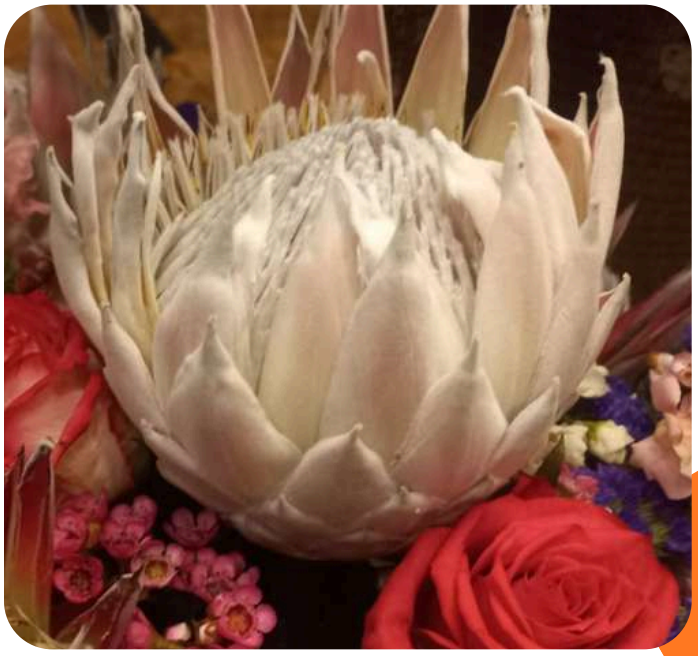
Meanwhile, the Integrated Resource Plan (IRP 2025) released this month by Dr Kgosientsho Ramokgopa, South Africa's Minister of Electricity and Energy, sets an ambitious direction for the country's energy future – one that includes a renewed commitment to nuclear power.

Finally, we look at how Africa is pioneering nuclear innovation as it faces a worsening electricity crisis, as covered in an insightful article first published by America Out Loud.

As ever, we remain dedicated to connecting policy, technology, and people across the continent. May this edition inform, inspire, and energise you.

Heather Veldhuis

HEATHER VELDHUIS
EDITOR



The King Protea, South Africa's national flower, captivates with its large, vibrant blooms and bold symmetry, symbolising beauty, strength, and the rich diversity of the nation's natural heritage.

The King Protea is a large woody shrub with glossy leaves and striking blooms up to 300 mm, ranging from creamy white to deep crimson. It typically blooms from late winter to spring, roughly August to November in South Africa.

HEATHER TALKS TO MARTIN MAINE OF AQUAJET PROFILES (PTY) LTD ABOUT HIGH PRECISION CUTTING

Is it possible to cut metal using water? Yes, it really is!

The waterjet process involves high-pressure water passing through a tungsten carbide focusing tube at speeds of Mach 3, three times the speed of sound. This “tool”, powered by massive pressure, travels with a precision of 0.15 mm accuracy.

Waterjet cutting is a computer-controlled manufacturing process that uses a high-pressure jet of water to cut materials. For soft materials, a fine stream of water is sufficient, while harder materials require an abrasive like sand to be mixed into the waterjet, creating a powerful cutting tool that erodes material away. The process is known as a "cold cutting" method because it does not use heat, which means it does not change the material's mechanical properties or cause a heat-affected zone.

The water stream is under huge pressure, with pressures like 350 MPa, to as much as 480 MPa. Bear in mind that car tyres are pumped to about 250 kPa. The exact pressure used depends on the material being cut, with higher pressures required for tougher materials.

Interview:

Heather:
Martin, thank you for joining us. Let’s start at the beginning. South Africa’s nuclear journey really gained momentum with the commissioning of the Koeberg Nuclear Reactor in 1974. How did that milestone eventually connect to the founding of Aquajet Profiles?

Martin:
You’re absolutely right, Heather. Koeberg marked the start of South Africa’s nuclear story, but it was the next chapter, the Pebble Bed Modular Reactor (PBMR) project, that really shaped our direction.

A group of engineers at Eskom established the PBMR company to develop a uniquely South African modular reactor. Around 1977, I attended a seminar by the South African Institute of Welding, which explored welding processes for the PBMR. That session planted the seed, because where there is precision welding, there must also be precision cutting.

Heather:
And that led to your interest in the then-emerging laser and waterjet technologies?

Martin:
Exactly. At the time, both technologies were relatively new and somewhat experimental. However, the abrasive waterjet process stood out. It was clean, precise, and capable of cutting virtually any material. It was both challenging and full of potential. We decided to take the leap and acquire South Africa’s very first precision waterjet cutting machine. That decision marked the birth of Aquajet Profiles (Pty) Ltd. **CONTINUED ON PG 05**

Martin Maine is an accomplished engineer and industry leader, having served twice as President of the Institute of Welding (1976/77). He founded Rio-Carb (Pty) Limited in partnership with Rio-Tinto S.A. Limited and went on to establish Aquajet Profiles (Pty) Limited in 2000.

INTERVIEW CONT.... FROM PG 4

Heather:
That was a bold move, introducing a completely new technology to the country. How did you ensure it met the rigorous demands of the nuclear sector?

Martin:
From the start, we knew that precision and repeatability would be non-negotiable, particularly for nuclear applications. After carefully evaluating the international market, we imported a top-of-the-range machine from the United States that could meet those exacting standards. By 2000, Aquajet Profiles was fully operational and had already established itself as a leader in composite and precision cutting.

Heather:
Then, in 2009, the PBMR project was decommissioned. That must have been a turning point for many companies connected to it. How did Aquajet adapt?

Martin:
It was indeed a challenging period, but we saw it as an opportunity to refocus. We expanded into other industries such as aerospace, automotive and mining, while keeping our “nuclear DNA” intact. By that I mean our core principles of accuracy, quality assurance and technical excellence. Those values have remained the foundation of our business ever since.

Heather:
Fast forward to this year, and Stratek Global has announced plans for the HTMR-100 Small Modular Reactor. What does that mean for you and your team at Aquajet?

Martin:
Honestly, it feels like we have come full circle. The announcement created a real sense of déjà vu for us. We see it as a revival of South Africa’s nuclear innovation, and for Aquajet Profiles, it represents a return to the very roots that defined who we are. We are excited to contribute our expertise once again to a sector that demands the highest levels of precision and performance.

Heather:
Thank you, Martin. It is inspiring to see how Aquajet’s early commitment to nuclear excellence continues to shape its identity today, and how that same DNA may once again help to build South Africa’s future in clean and reliable nuclear energy.

From pioneering South Africa’s first precision waterjet cutting to sustaining a culture of excellence across multiple industries, Aquajet Profiles stands as a testament to the power of innovation. As the nation looks once again to nuclear energy as part of its clean energy future, companies like Aquajet remind us that true progress is built on precision, perseverance, and vision.

AFRICA'S NUCLEAR POWER LANDSCAPE.

OCTOBER 2025 HIGHLIGHTS

South Africa aims to revive its small nuclear reactor technology

South Africa aims to revive its small modular reactor (SMR) / modular nuclear reactor technology research (previously its Pebble Bed Modular Reactor (PBMR) research) and lift the "care and maintenance" status of the PBMR programme by early next year.

Ethiopia sets up Nuclear Energy Commission as it eyes first reactor

Ethiopia's Cabinet approved a regulation to establish a new Nuclear Energy Commission in preparation for building its first nuclear reactors. Earlier, the country signed a cooperation action plan with Russia's Rosatom to conduct feasibility studies.

Rosatom offers floating nuclear technology to Africa

Rosatom showcased floating nuclear plant technology (floating nuclear power plants) during the Africa Energy Week 2025 in South Africa, engaging with African energy stakeholders. Also in Algeria, Rosatom held a seminar on non-energy nuclear applications (medicine, desalination) in Africa, and referenced building a nuclear power plant in Ethiopia.

Global context: U.S. $80 billion nuclear reactor deal, and global SMR momentum

On 28 October 2025, the United States Nuclear Regulatory Commission partner deal committing to build at least US$80 billion worth of nuclear reactors in the U.S. using AP1000 technology.

Will building nuclear power plants empower Africa or entrench foreign reliance?

An article published in Anadolu Ajansi examines a key question: while nuclear power promises stable, low-carbon electricity for Africa, there is a risk that it could deepen dependence on foreign companies, technologies, fuel-supply chains, and financing. It highlights that currently only South Africa has an operating nuclear plant on the continent, and many countries are now planning nuclear power programmes.

G20 NUCLEAR MEETING NEAR DURBAN

Africa is larger than the US, Europe, China, and India added together. In this large landmass, there are still over 600 million people who do not have access to electricity. As far as fundamental human morality is concerned government should try to supply these people with electricity. However, one also has to take reality into account, and one can only electrify as fast as economic good sense dictates. You can't bankrupt a country… in the interests of advancing the welfare of the people!

A clear answer for African countries is to aim for nuclear power, particularly Small Modular Reactors. Why? Well, because nuclear is clean, green, safe, and affordable. This statement is totally true, no matter what anybody tells you to the contrary.

Therefore, it was totally reasonable for the G20 to have held a Nuclear Energy Ministerial meeting in Umhlanga, near Durban, in South Africa.

During his Keynote address the IAEA Director General, Dr Rafael Mariano Grossi said; "In Africa, as in the rest of the world, nuclear power is increasingly recognized as a source of reliable, safe and affordable energy," The DG added, "The IAEA is, and will always be, ready to support Africa and the G20 in turning this potential into lasting progress."

Currently, South Africa is the only African country operating a nuclear power plant. However, Egypt is well on the way to becoming Africa's second nuclear operating country, as the construction of its inaugural El Dabaa nuclear power plant makes significant progress. A number of other African countries are also actively pursuing nuclear power as the obvious answer to their electricity futures.

There is now a clear global consensus on the need to advance nuclear power capacity in many countries. The World Bank has now recognised nuclear as a reality that needs to be supported. Such moves should greatly assist in making finance available for nuclear projects.

The IAEA is participating in the G20 for the second year in a row, building on the cooperation that started under the G20's Brazilian presidency last year.

After a press conference with Dr Grossi and South Africa's Deputy Minister of Electricity and Energy, Samantha Graham-Maré, the Head of the IAEA's Planning and Economic Studies Section, Henri Paillere, presented the IAEA's latest contribution to G20 work on nuclear power, a publication, 'Coal to Nuclear: Supporting a Clean Energy Transition,' The publication explores the benefits of repurposing former coal power plant sites to support reactor deployments.

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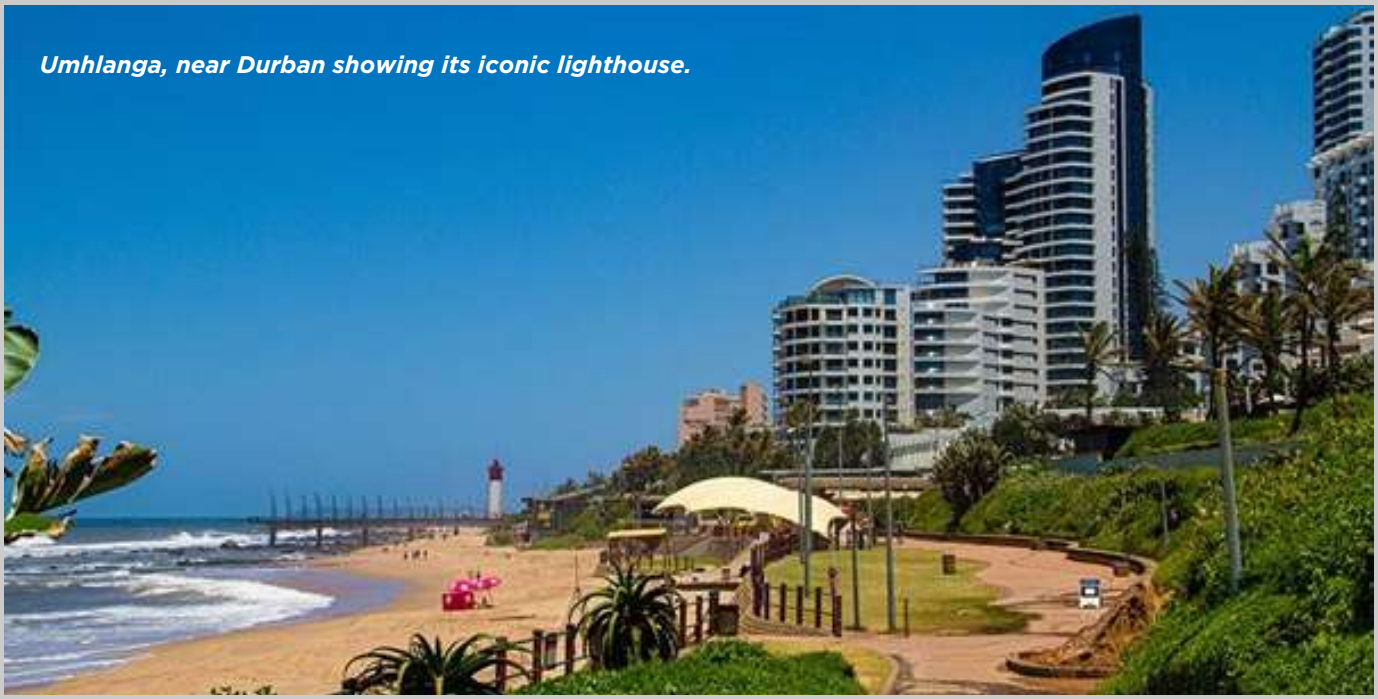

Umhlanga, near Durban showing its iconic lighthouse.

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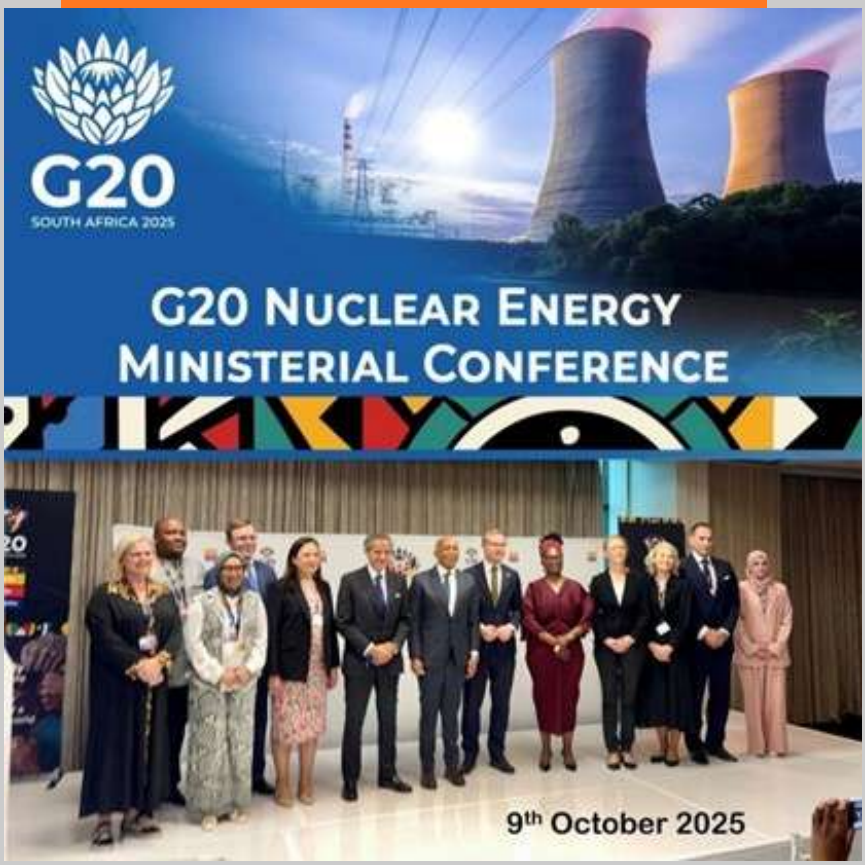
Deputy Minister Graham-Maré said, "This IAEA publication on coal-to-nuclear transitions is both timely and necessary; it offers a practical pathway for countries, particularly those with established coal infrastructure, to accelerate their energy transitions while retaining grid stability, enabling industrialization and safeguarding jobs."

Loyiso Tyabashe, the CEO of the South African Nuclear Energy Corporation (Necsa), stated, "Nuclear offers a huge opportunity to industrialize Africa and enable the achievement of its goal of providing a better life for its citizens."

According to the latest IAEA projections, nuclear generating capacity on the continent should triple by 2030 compared to the 2024 capacity. That same scenario has the capacity growing sixteen-fold by mid-century.

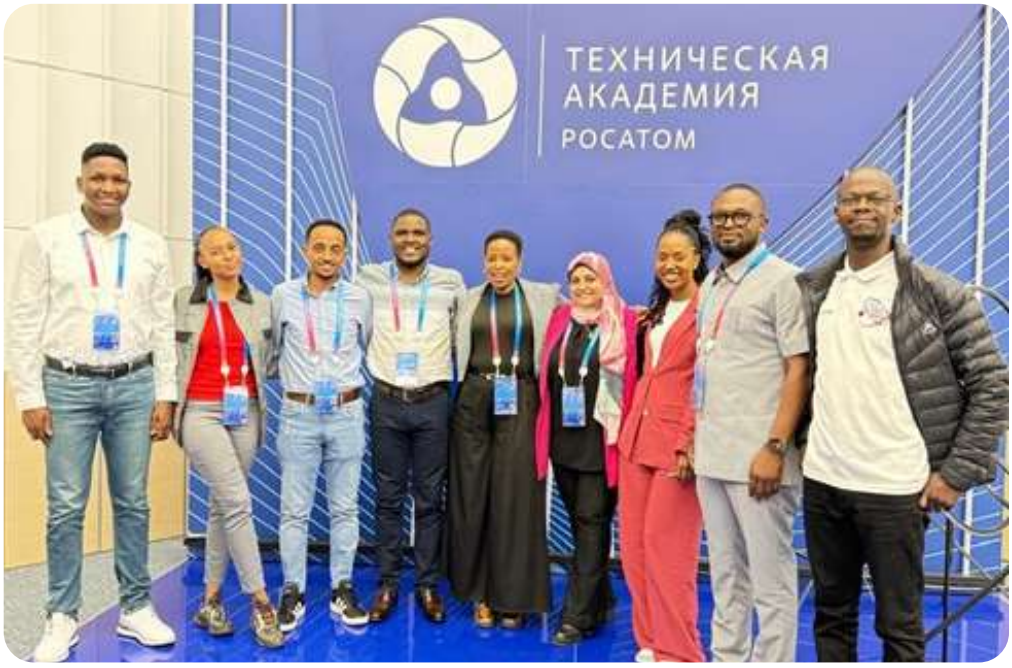


Some of the dignitaries who gathered at the G20 Nuclear Energy Ministerial meeting at Umhlanga near Durban.
Centre: Dr Kgosientsho Ramokgopa, South African Minister of Electricity and Energy, and on his right Dr Rafael Grossi DG: IAEA. Extreme left Samantha Graham-Mare, Deputy Minister of Electricity and Energy

READER FEEDBACK

"I believe that Chris Meyer is quite correct in highlighting the cost of decommissioning and toxic waste in the renewable energy sector. However, I also believe that he missed the most crucial component in terms of environmental factors, which also includes decommissioning and toxic waste, i.e., large lithium batteries. Working in the sustainable and renewable energy space, I have advocated the negative environmental and safety aspects of lithium batteries, especially in the stationary energy storage scenario, for the last 7 to 8 years, but people in the industry are more interested in the money they are making, than considering what the use of lithium in batteries is doing to the environment in the mining, processing and recycling of it – not even talking about the safety and health issues when they catch fire. And the fact is that there are alternatives... We cannot talk about clean energy using dirty batteries....."

WORLD ATOMIC WEEK HELD IN MOSCOW



Representatives of the African Young Generation in Nuclear (AYGN) attended WAW! in Moscow. Delegates from South Africa, Zambia, Rwanda, Kenya, Ethiopia, Egypt, Ghana, among other countries, represented the continent. The World Atomic Week gathered global nuclear industry leaders and experts, industry players, financiers and marketers, young professionals and students to celebrate 80 years of the nuclear industry!

The World Atomic Week International Forum (WAW-2025) associated with the 80th anniversary of the nuclear industry celebrated this year was held in Moscow in September.

High-ranking people who took part in the official opening ceremony included: The First Deputy Head of the Presidential Executive Office of the Russian Federation, and Chairman of the Board of Rosatom, Sergey Kirienko, plus the Deputy Chairman of the Russian Federation, Alexander Novak.

Also attending were Dr Rafael Grossi, Director General of the International Atomic Energy Agency, and Dr Sama Bilbao y León, Director General of the World Nuclear Association.

Alexey Likhachev, CEO of Rosatom, also took part.
Sergei Kiriyenko remarked, “Nuclear energy is an industry with very long cycles. This calls for deep mutual trust. And we, Russia and Rosatom, have always followed this principle: building long-term, trusting relationships with our partners, readily sharing technologies and expertise, creating joint ventures, and working together in third-country markets. We are convinced that this is how modern technologies should be developed to bring prosperity, security, and well-being to people all over the world – not through restrictions, embargoes, or sanctions.”

He also pointed out that. ‘Modern nuclear power plants have a lifespan of about 100 years. This means that the agreements reached will shape the fate of our planet for at least the rest of this century.”

Rosatom CEO Alexey Likhachev said: “It is a great pleasure, a great honour, and a great responsibility to organize a discussion on the development of nuclear technologies and the creation of a happy future for our planet here in Moscow, during the World Atomic Week. Much of what will happen here will be for the first time. This includes the Global Atomic Forum, the development of partnership relations in the field of atomic energy within BRICS, and an extensive youth program. Our task is to step together into tomorrow, where there will be no alternative to the use of nuclear energy as the basis for green energy. We sincerely thank our partners for their trust. We will do everything to justify this trust. We declare the World Atomic Week open!”

ROADMAP FOR NUCLEAR-POWERED SHIPPING ISSUED BY LLOYDS

Nuclear power for maritime use is certainly not a new idea. It goes way back over 50 years, to the early days of nuclear power for naval ships, particularly for submarines.

But recently, there has been a sudden surge of interest in developing nuclear power for commercial maritime use.. This means that new types of small reactors have to be developed. There is a significant difference between the type of reactors that are applicable for military naval use and commercial maritime use. It certainly now seems inevitable that there will be a significant number of commercial ships using nuclear power in the very near future.

The obvious immediate advantages that present themselves are that refuelling is almost eliminated. Nuclear systems can be designed such that refuelling is only required once a year. Furthermore, the ship does not have to carry very much fuel at all. This factor should be compared to any ship running on coal or oil, which has to carry all that volume and weight of fuel. If the standard fuel volume and weight of such a ship can be converted to carrying commercial cargo, then just look at the financial advantage to be gained.

In addition, if refuelling is not required, then ships can take different routes on long voyages, thereby avoiding the requirement to put into ports and pay all the port costs, and also no need to pay for the extra travel distance required merely to pass a port to refuel.

So, with the reality of large-scale nuclear-powered shipping coming into being quite soon, the major insurance company Lloyd's Register (LR) has published new guidance on the use of nuclear energy in commercial shipping, offering what it calls the first comprehensive roadmap for the safe and responsible integration of nuclear power into the maritime sector.

CONTINUED ON PG 11

The Yamal is a nuclear-powered icebreaker built in Russia. She is the youngest of the five Arktika class ships built in the mid-1970s.

The Yamal is now chartered out on other operations, particularly for tourists. The original purpose of being used to keep northern navigational routes open during the winter is now less important.

For their size, the Arktika class ships are amongst the most powerful and sophisticated ever built. The name "Yamal" means "End of the Earth."

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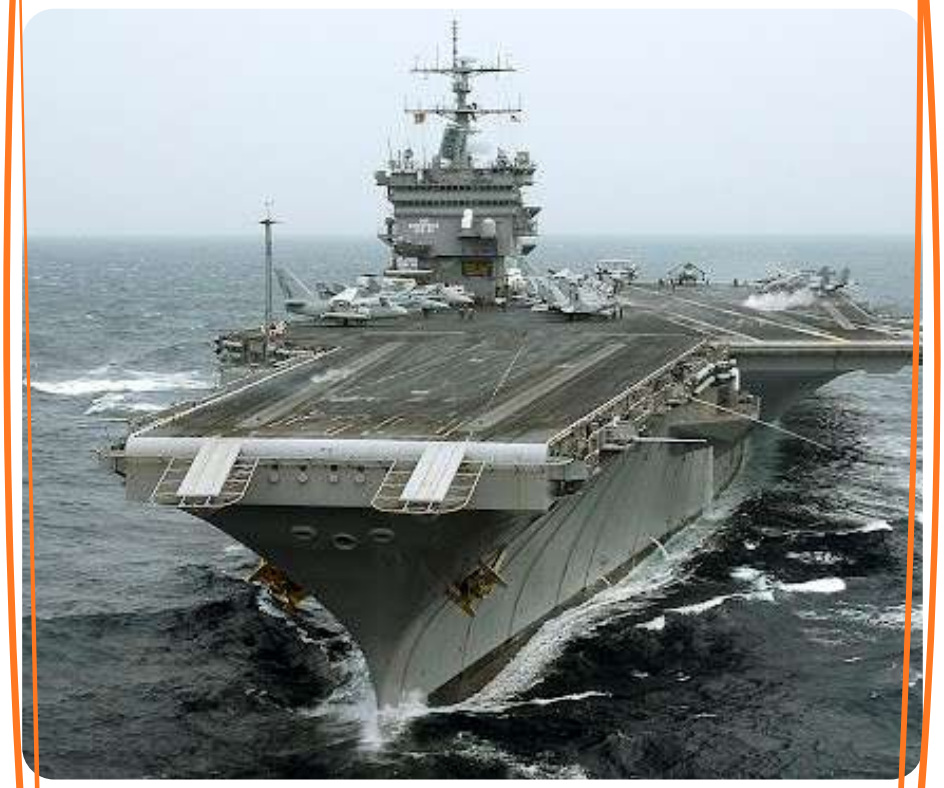

The USS Enterprise was the first nuclear-powered aircraft carrier. It was launched in 1960 and commissioned into the US Navy in 1961. Powered by eight nuclear reactors (two for each of its four propellers), the Enterprise, over a period of three years, cruised more than 320,000 km before requiring refuelling.

In addition to endurance, its nuclear reactors gave the ship greater space for aviation fuel, ordnance, and stores. With a top speed of more than 30 knots, it was said to be the fastest warship afloat.

The Enterprise served in conflicts from the Cuban Missile Crisis (1962) to the Iraq War (2003–11). It was retired in 2012.

The document, 'Navigating Nuclear Energy in Maritime,' was developed in partnership with Global Nuclear Security Partners (GNSP) and marine insurer NorthStandard. It outlines how shipowners, operators, and regulators can approach nuclear propulsion — from regulatory approval and technical design to insurance and crew training.

Also, the reality of the politics of carbon dioxide being argued as being an agent promoting climate change has caused Lloyds to point out that as the industry looks for long-term zero-carbon solutions, nuclear technology — including Small Modular Reactors (SMRs) — could play a role in decarbonising deep-sea transport.

But Lloyds noted that the sector still lacks a unified international framework for regulation, safety, and liability.

The guidance document discusses the roles of the IMO and IAEA, stressing the need to align maritime and nuclear standards. It covers safety classification, environmental assessments, structural integrity, and nuclear safety case development, as well as physical and cyber security measures.

Operational and financial considerations are also addressed, including qualifications for onboard personnel, emergency response plans, and insurance structures.

SOUTH AFRICA BETS ON NUCLEAR: THE POWER MOVE THAT COULD CHANGE AFRICA'S FUTURE

(Image: South African Government News Agency)

The Integrated Resource Plan 2025 (IRP 2025), released this month by Dr Kgosientsho Ramokgopa, South Africa's Minister of Electricity and Energy, sets an ambitious direction for the nation's energy future. With an estimated investment of R 2.2 trillion, the plan aims to add over 105 000 MW of new generation capacity by 2039.

A key highlight is the renewed focus on nuclear power, with 5 200 MW of new capacity planned and potential for further expansion. Minister Ramokgopa emphasises that this is about more than electricity. It is a driver for industrialisation, skills development, and localisation of the nuclear value chain, including the deployment of Small Modular Reactors (SMRs).

South Africa's move reflects a broader shift in how nuclear energy is perceived across Africa and the world. Once considered a last-resort option, nuclear is now emerging as a strategic tool for clean industrial growth and energy security. For the African context, it signals the integration of nuclear into development strategies, creating jobs, building skills, and fostering local value chains. NECSA notes that IRP 2025 opens the door to "a robust nuclear build programme" and positions nuclear as central to a just energy transition.

Globally, this narrative change is timely. As countries face climate imperatives and energy security challenges, South Africa's approach shows that emerging economies can use nuclear as part of a diversified, resilient, and clean energy mix. Importantly, the IRP balances nuclear with solar, wind, gas and even clean coal technologies, ensuring a complementary rather than replacement role for renewables.

IRP 2025 marks a turning point. It reframes nuclear from a legacy challenge into a strategic asset and signals a new story for South Africa and Africa: power infrastructure as an engine of growth, localisation as value creation, and clean energy as a foundation for future competitiveness.

AFRICA IS PIONEERING NUCLEAR INNOVATION AS IT FACES A DIRE ELECTRICITY CRISIS

Sub-Saharan Africa faces a dire electricity crisis. Over 600 million people—more than 40% of the continent's population—lack access to electricity, a figure projected to rise to 657 million by 2030 without intervention.

The global nuclear renaissance is well underway—evidenced by companies like Oklo, which is now included in the Russell 2000 stocks list. The outlook is based on Oklo's long-term vision, particularly with the Trump Administration's increased focus on AI Revolution data center development powered by nuclear-generated electricity.

The World Bank removing its ban on nuclear power presents a vital opportunity for developing economies to position themselves as leaders rather than followers in advanced electricity technology.

Developing nations need not be mere consumers of advanced technology but can be innovators, exporters, and active participants in providing clean and reliable electricity to billions on the planet who do not yet have access to electricity or modern amenities.

South Africa was the first country in the world to start commercializing Small Modular Reactor Technology with its Pebble Bed Modular Reactor (PBMR) program, which was suspended around 2010. Having decades of experience in nuclear technology development, South African scientists and engineers are sought after all over the world for their knowledge, practical approach to complex engineering projects, and meticulous attention to detail, i.e., the legacy of the PBMR program.

After the PBMR project was put on indefinite suspension in 2010, the expertise that remained in South Africa continued developing Small Modular Reactor (SMR) technology, the High Temperature Modular Reactor (HTMR), as a home-grown solution—a testament to both the dedication of the technical teams and the commercial viability they saw in the technology. **CONTINUED ON PG 14**

Ronald Stein, P.E. is an engineer, energy consultant, speaker, author of books and articles on energy, environmental policy, and human rights, and Founder of PTS Advance, a California based company.

Dr. Robert Jeffrey is an economist, business manager and energy expert. He has Masters degrees in economics and holds a PhD in Engineering Management. He was on the economic round table advising the South African Reserve Bank.

Olivia Vaughan holds a Bachelor of Commerce in Law and a MBA and operates across key sectors in the circular economy with focus on sustainable systems and the built environment. She lives in the Eastern Cape of South Africa.

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This grouping of pioneering technologists and business strategists in South Africa formed Stratek Global as an umbrella organization to bring advanced technologies and combined power mix solutions to market. Stratek Global has recently secured land on which it plans to build a small modular reactor.

Game-Changing Technology for Developing Economies

SMRs represent a paradigm shift in nuclear electricity design. The South African HTMR is specifically engineered to address the unique challenges facing Africa and other developing regions, like vast land areas and a lack of water resources. As an example, the HTMR-100's turbine condenser design uses radiator cooling, and the reactor's primary circuit is helium-cooled—a crucial innovation for a continent where many regions lack access to large inland water bodies.
The smaller size of SMRs' thermal and electrical capacity makes the technology an ideal solution for decentralized power generation, addressing one of Africa's most pressing infrastructure challenges.

Instead of requiring thousands of kilometers of new transmission lines—like the 14,000 km needed to unlock South Africa's Northern Cape solar developments—SMRs can be positioned close to their consumers: mines, smelters, municipalities, and industrial facilities.

This proximity advantage extends beyond simple logistics. By placing generation near consumption, SMRs can free up existing grid capacity, alleviate congestion issues, and provide reliable baseload power. For developing economies struggling with electricity security, this represents a path to industrial growth without the massive upfront infrastructure investments typically required.

The fuel supply chain is the TRISO (Tri-structural ISOtropic) coated particles that are a type of nuclear fuel kernel encased in multiple layers of protective materials. These particles are designed to contain radioactive fission products even under extreme conditions, making them highly robust and suitable for advanced reactor designs. The US Department of Energy calls TRISO particles "the most robust fuel on earth."

TRISO fuel required to fuel advanced nuclear technologies has been completely designed and manufactured in South Africa.

Recent TRISO recycling development includes a Savannah River National Laboratory (SRNL) project to demonstrate a full-scale TRISO recycling process by 2027.

Additionally, a validation study for Deep Isolation's Universal Canister System (UCS) with Kairos Power's TRISO fuel was completed in May 2025, demonstrating the system's viability for storing, transporting, and disposing of TRISO fuel in deep boreholes and mined repositories.

South African National Nuclear Regulator

South Africa has one of the oldest nuclear regulators in the world. In 1948, the Atomic Energy Act established the Atomic Energy Board (AEB) with the immediate objective of regulating the uranium industry in South Africa. The AEB later became the Atomic Energy Corporation (AEC). South Africa became a founding member state of the International Atomic Energy Agency in 1957.

For operating reactor power plants, the National Nuclear Regulator (NNR) monitors the licensing conditions, operating technical specifications compliance, maintenance and testing regime compliance, and achievement of standards set. It also monitors the modifications and improvement programs to ensure continual improvements to international standards.

Over the years, the South African NNR has shown itself to be a most effective organization and is well equipped to license large reactors, as well as high-temperature gas-cooled reactors.

Nuclear installations, as defined in the National Act, can only be sited, constructed, operated, and decommissioned under a Nuclear Installation License. Operations covered include nuclear medicine facilities in hospitals, and mining operations that deal with radioactive substances such as Uranium.

The Koeberg Nuclear Power Station, located 30 km north of Cape Town, South Africa, is the only commercial nuclear power plant in Africa. It features two pressurized water reactors (PWRs) designed by Framatome of France, with construction starting in 1976. Unit 1 was synchronized to the grid on April 4, 1984, and Unit 2 on July 25, 1985. CONTINUED ON PG 15

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Economic Transformation Potential
The economic implications of domestic nuclear manufacturing extend far beyond energy security. Dr. Robert Jeffrey has assessed the economic potential of SMRs, and the report revealed "phenomenal" export opportunities that will positively impact South Africa's balance of payments—a benefit that would extend to any developing nation establishing nuclear manufacturing capabilities.

Nuclear construction projects in South Africa could contribute as much as 2% GDP growth over the next decade, before the reactors even come online. Unlike solar farms, which offer limited local skills transfer, nuclear projects require extensive engineering fabrication, high-skilled manufacturing, and sophisticated operational expertise. This creates opportunities for reskilling and upskilling across multiple sectors, from welding and construction to advanced engineering and physics.

SMRs enable multiple applications beyond electricity generation, including seawater desalination, nuclear isotope production for medical applications, and research and development activities. This multi-purpose capability means developing nations can maximize their return on nuclear investments while addressing multiple infrastructure needs simultaneously.

"Jobs need electricity. So do factories, hospitals, schools, and water systems. And as demand surges—with AI and development alike—we must help countries deliver reliable, affordable power. That's why we're embracing nuclear energy as part of the solution—and reembracing it as part of the mix the World Bank Group can offer developing countries to achieve their ambitions. Importantly, nuclear delivers baseload power, which is essential to building modern economies," said World Bank Group President Ajay Banga.

For developing economies, this represents a chance to leapfrog into high-technology manufacturing while building domestic expertise that can serve both local needs and global markets. The indoor manufacturing environment for SMR components means these facilities can be established anywhere with appropriate infrastructure and supply chains.

It is important to note that the developed world continues to enjoy the circa 6,000+ products that oil and coal continue to contribute to their daily standard of living. Developing nations need to continue to benefit and optimize their oil and coal-based assets while building nuclear energy simultaneously to secure the future of generations to come.

A Critical Moment for African Innovation
The choice facing Africa and other developing regions is clear: support indigenous innovation now!

For those with the vision to ensure Africa's energy independence while contributing to technologies that could power sustainable development across the Global South, SMRs are positioned as a golden opportunity to invest in the future of young and developing nations. In an era where electricity security and economic development are inextricably linked, backing small and micro nuclear technologies isn't just good business; it's an investment in a more equitable and sustainable global electricity future.

Image: Stratek Global SMR

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THE WORLD OF NUCLEAR

Any person who has influence and a role to play in representing any Nuclear-Related Developments to advance nuclear power in Africa. or in any international entity, which can contribute to the development of Africa's nuclear energy capability is encouraged to be part of this great journey.

Any company, ranging in capability from a nut and bolt to the most sophisticated piece of equipment, should join the journey now.

N²A IS AN INDEPENDANT PUBLICATION

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Submit your article or topic for consideration in our next N²A edition.
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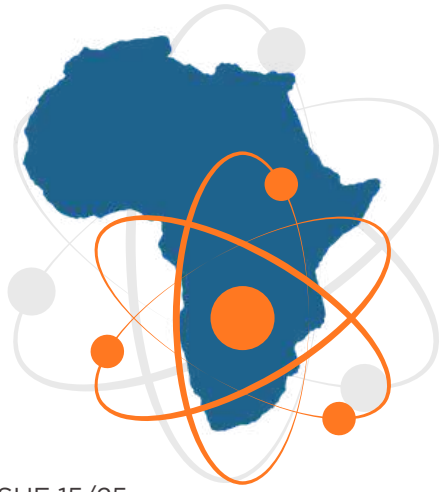

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