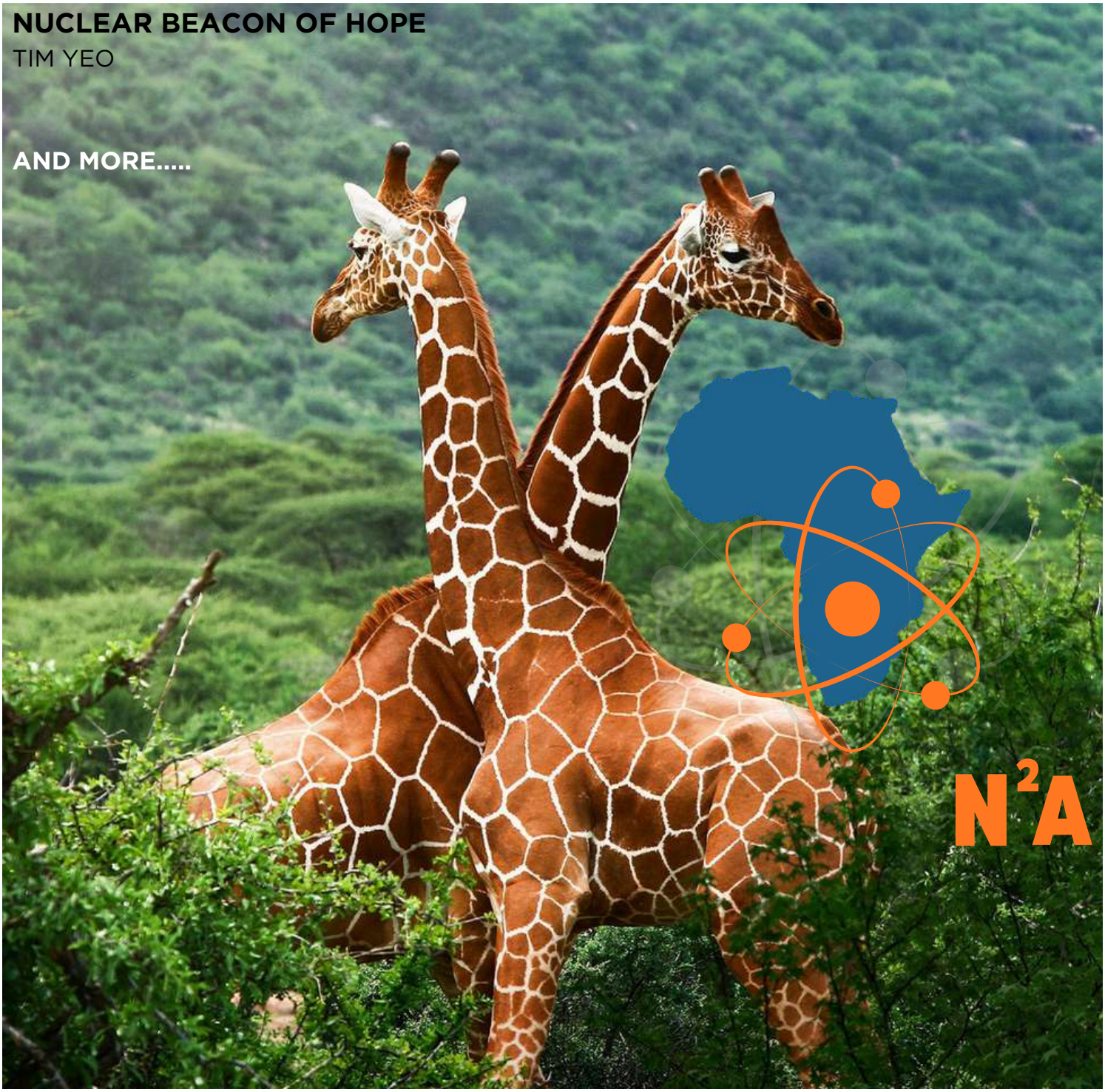
NUCLEAR NETWORK AFRICA

THE WORLD OF NUCLEAR

LEADERSHIP IN A NUCLEAR ENVIRONMENT
REAR ADMIRAL ROBERT (RUSTY) HIGGS

NUCLEAR BEACON OF HOPE
TIM YEO

AND MORE.....



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FROM THE EDITOR

As the global conversation around clean energy deepens, the June edition of N²A Nuclear Network Africa takes a bold step forward, exploring nuclear energy not just as a technology, but as a leadership imperative and a strategic solution for Africa's energy future.

This month's articles reflect a powerful, unifying theme: nuclear energy as a beacon of hope and renewal. We delve into the unique leadership qualities required to drive innovation in a nuclear environment, as well as the groundbreaking assertion that nuclear power should be recognised as a renewable energy source, challenging conventional thinking and sparking necessary debate.

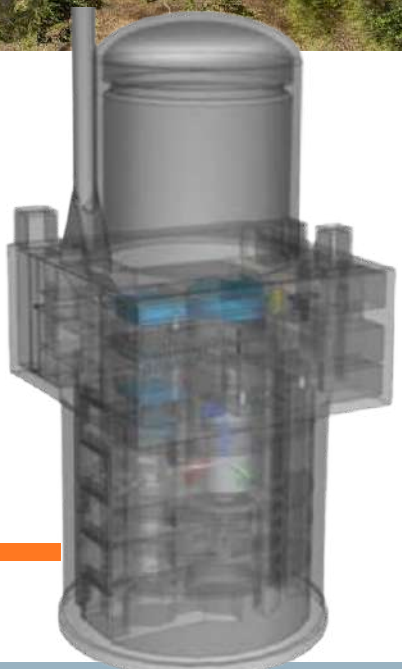
A highlight of this edition is the Stratek Global Masterclass Round Table held at the ENLIT Africa Conference in Cape Town, where Small Modular Reactors (SMRs) took centre stage as a practical and scalable answer to Africa's energy security challenges. Meanwhile, the Tshwane Energy Summit 2025 builds momentum, placing Pretoria at the forefront of embracing nuclear solutions for urban power resilience.

In a world searching for sustainable answers, Africa is stepping forward with vision and courage. This issue showcases the people, platforms, and policies positioning nuclear energy not just as a tool, but as a transformative force for a brighter tomorrow.

Warm regards,

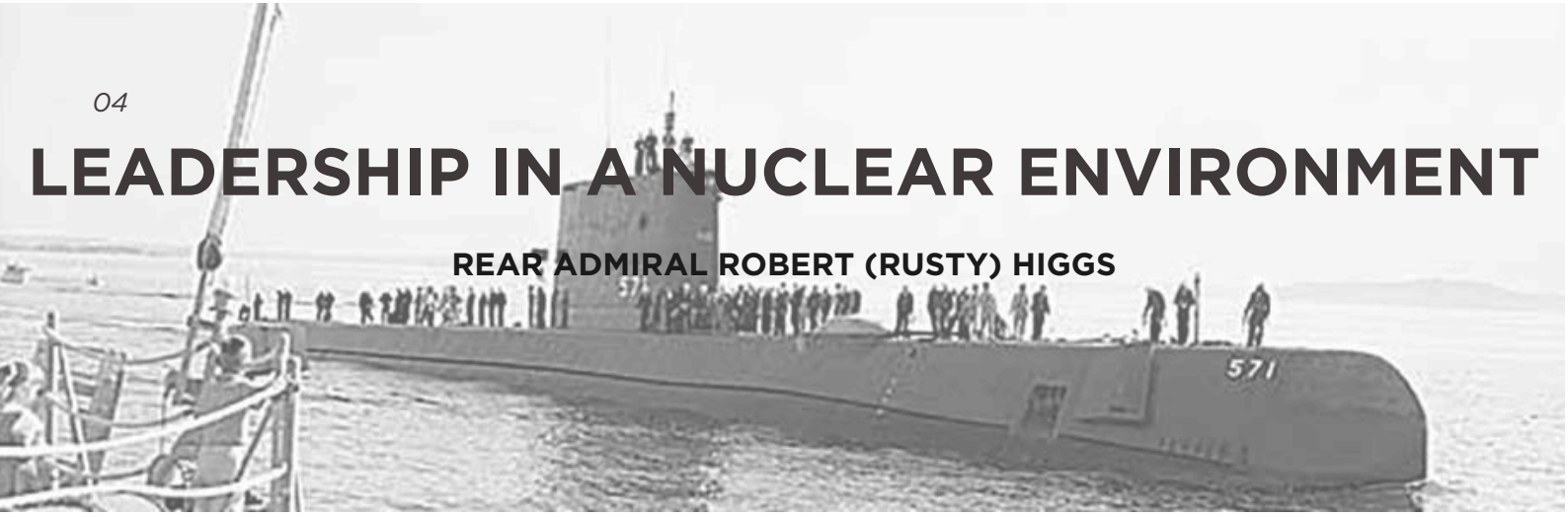
Heather Veldhuis

HEATHER VELDHUIS
EDITOR

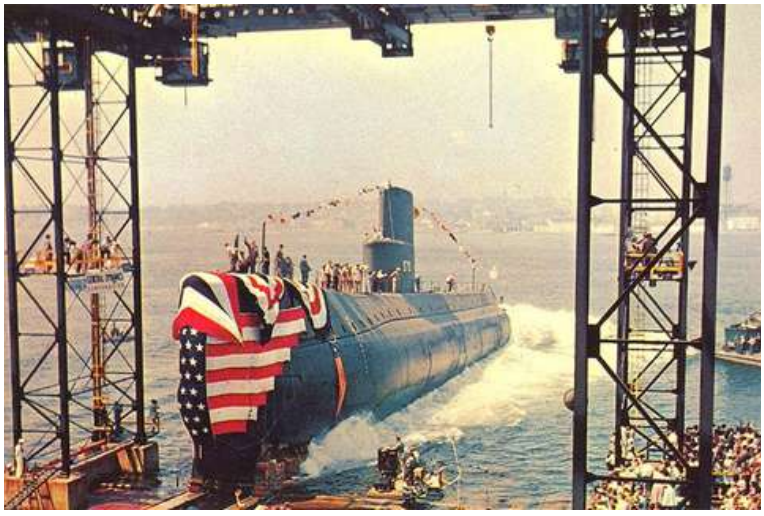


LEADERSHIP IN A NUCLEAR ENVIRONMENT

REAR ADMIRAL ROBERT (RUSTY) HIGGS



The Submarine SSN-571 is the USS Nautilus, which was the first nuclear powered submarine to complete a submerged transit under the North Polar Ice Cap on 3 August 1958



Adm Higgs greats Chinese Naval Ship visiting South Africa

Rear Admiral Robert (Rusty) Higgs graduated from the South African Naval College in 1978 before attending the South African Military Academy, obtaining a B Mil degree. He qualified as a mine clearance officer before commanding SAS Fleur.

He then qualified in submarines, becoming First Lieutenant on SAS Umkhonto (S98) in 1989, and Officer Commanding of the SAS Assegaai. In 1994 he became the first SA Navy officer to attend the US Naval War College. He then obtained a master's degree in International Relations from Salve Regina University in May 1996.

In 1996 he was promoted to Captain, serving as the Director of Naval Force Planning and Director of Naval Strategy. In 1998 he was appointed the Naval Attache to Washington. In February 2005 he was promoted to Rear Admiral (jg) and appointed as Director of Maritime Warfare. He was appointed Chief of Fleet Staff in April 2007 before being promoted to Rear Admiral in April 2008 and appointed Flag Officer Fleet. On 1 November 2010 he became Chief of Naval Staff. He is now retired from the SA Navy.

CONTINUED ON PG 05

Leadership in a Nuclear Environment

I write this piece from the context of a retired South African Naval Officer who was privileged to command a Daphne Class Submarine in 1991/2 and act as the "Teacher" for the Submarine Officer Commanding Course in 1993. I was then privileged to attend the Naval Command College of the US Naval War College in 1994/5 when sanctions were lifted against South Africa.

The Daphne Submarine was a conventional diesel-electric submarine of 1000 tons which operated in the third dimension with a crew of 51 submariners, with a maximum of 65 souls on board. The unique characteristic of submariners, unlike the surface fleet, is that they are all volunteers. This allows for a unique type of leadership to be practiced, with a focus on safety in a high stakes environment. The submarine which I commanded in 1991/2, the SAS JOHANNA VAN DER MERWE, renamed the SAS ASSEGAAI, was decommissioned in 2003. She has since been retained for preservation as a 'museum on the hard' in Simon's Town and is well worth a visit!

The US Navy was the first organisation to develop nuclear power for submarines and aircraft carriers, with the USS Nautilus going to sea under nuclear power in January 1954. This was followed in June of 1954 by the USSR, who were the first to generate nuclear electricity for a power grid. This was then followed by the first commercial nuclear power station in England in August 1956. Hence the Navy was at the forefront of the development of this nuclear technology.

SAS Assegaai

Adm Higgs meets Former Persident Nelson Mandela

A new-generation South African submarine, SAS Manthatisi, moored at Simons Town Naval Base

CONTINUED ON PG 06

During my appointment to the US Naval War College, thirty years ago, I followed with great interest, how retired naval officers were snapped up by the commercial nuclear industry as they started their second careers. Hence my interest in naval leadership as well as in leadership in the nuclear environment, with a specific interest in the submarine dimension.

Both submarine and nuclear environments are high stakes. They involve situations in which errors can have serious consequences. This requires a continuous focus on safety and accountability, for weeks and months on end, and way beyond that too. Both the submarine culture as well as the nuclear culture, require immense and in-depth technical expertise with the knowledge and recognised competence to make independent decisions, and solve problems to avoid catastrophe.

Both environments require continuous improvement and a mindset of learning and encouraging total professional honesty, even at the price of one's self. Complacency kills.

As I have experienced it, submarine leadership encourages an empowering mindset and model. Each individual in the team needs to be confident in handling a situation, without necessarily being instructed to do so, understanding the commander's intent, and being smart and flexible to achieve that with quick decision making. I recognise that nuclear leadership may very well be more hierarchical, along a more traditional approach, emphasising procedures and protocols.

Leadership training and development for submariners is rigorous, particularly for aspirant officers commanding. It has to be rigorous and focused, aiming to prepare them for the unique demands of submarine command, as well as through the leadership cadre of the submarine in a high pressure and confined environment. It is all about teamwork, decision making and communication in stressful situations.

SAS Assegaai

SAS Assegaai positioned on land as a museum

As I understand it, leadership in the commercial nuclear world requires effective leadership to ensure a strong culture, built on integrity and a total commitment to excellence. Your heart has to be in it! Integrity is underpinned by ethical conduct and honest and sincere communication. It is vital for all members of the team to be inspirational in their leadership style. The reality is that leaders must realise that they are serving as role models, by continuously and visibly demonstrating their values which they expect from their teams, and in particular relating to nuclear safety.

An idea for the future: There may be synergies which could be capitalised on between the submarine community of South Africa as well as the local Nuclear Community, which could allow for underpinning new dimensions of professionalism across our broader community.

SAS Assegaai Museum Entrance

IMAGINE FOR A MINUTE!

SOUTH AFRICA'S SMR-DRIVEN ENERGY REVOLUTION

In this picture of South Africa's energy future, the country pulses with reliable, clean energy, not from a single grid, but from a network of decentralised microgrids, each powered by strategically placed Small Modular Reactors (SMRs). These compact nuclear units, safely embedded near towns, cities, and industrial zones, serve as local energy anchors, transforming the nation's power landscape.

From the rural expanses of the Karoo to the dense urban fabric of Gauteng, every region benefits from stable, uninterrupted electricity. No location is too remote, even coastal fishing villages and inland farming communities hum with energy independence. Load shedding is a thing of the past. The once-overburdened national grid has given way to a resilient, decentralised system that is less vulnerable to failure and far more responsive to local needs.

The environmental impact has been profound. With coal plants less pressured, carbon emissions have plummeted. Air is cleaner, and South Africa's international climate commitments are no longer aspirational, they're reality. Electricity prices have stabilised, even declined in some areas, thanks to the long lifespan and low operating costs of SMRs. For users, the benefit is immediate: lower bills and consistent supply.

Industry has flourished. Reliable baseload power has revitalised manufacturing, attracted foreign investment, and spurred innovation. New factories powered by local SMRs are producing parts and systems for export, turning South Africa into a global hub for SMR assembly and distribution across the continent and beyond.

Jobs have multiplied, from engineering and construction to transport and training, uplifting communities nationwide. With power no longer a constraint, South Africa has moved from energy crisis to energy leadership, lighting a path for the rest of Africa to follow. The SMRs don't just power homes — they power progress.

Stratek Global HTMR-100 Sable design, a 10 reactor configuratios designed as a result of a request for Lesotho, with specefic requirement to withstand the snow and ice conditions

NUCLEAR BEACON OF HOPE

TIM YEO

The mid-point of 2025 is a time of great uncertainty. President Trump's tariffs have hit international trade and are driving up US consumer prices and interest rates, with damaging effects on the economies of many other countries.

His promise to end the conflicts in Ukraine and Gaza as soon as he was back in the White House was empty rhetoric. Instead, a risky new front involving Iran has opened. Elsewhere wars continue to kill or blight the lives of millions of people in the world's poorest regions, preventing investment where it's most needed.

Against this gloomy background the nuclear energy industry stands out as a beacon of hope. Its prospects for expansion are better than at any time this century. This will deliver higher production of reliable, zero carbon, baseload electricity as well as many other benefits.

There are two reasons for this change. Firstly, more countries have realised that including nuclear in their energy mix strengthens the security of their energy supply, an outcome which in today's divided world is more valuable than ever.

Secondly, rapid decarbonization of the electricity generation industry is essential to address international climate change politics. This can only be achieved if nuclear plays a much bigger role than at present. Renewables, whose growth is welcome, can't do it all.

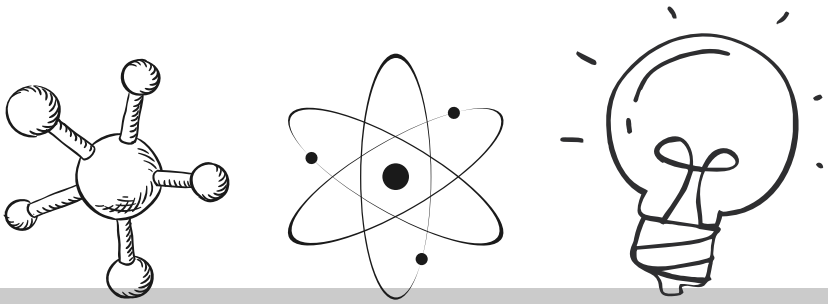
Timothy Yeo is Chairman of New Nuclear Watch Europe, in which role he promotes nuclear power. He Chairs the University of Sheffield Industrial Advisory Board for their Energy 2050 initiative. He is a graduate of Cambridge University.

He is a member of the British Conservative Party and was the Member of Parliament for the constituency of South Suffolk between the 1983 United Kingdom general election and that of 2015. He asked the first televised Prime Minister's Question to Margaret Thatcher on 28 November 1989.

In 1993, Mr Yeo was appointed Minister for the Environment and Countryside in the British government of Prime Minister John Major. Under his Chairmanship the Tadworth Court Children's Hospital was founded in 1984 after Great Ormond Street Hospital decided to relinquish the building in 1982.

From 1970 to 1973, Tim Yeo was assistant treasurer of Bankers Trust Company. Then, from 1975 to 1986, he was a director of Worcester Engineering Company. Tim Yeo occupies a seat on the board of Eurotunnel. He is also a director of ITI Energy Ltd.
He writes articles for Golf Weekly and Country Life magazines and, occasionally, the Financial Times. **CONTINUED ON PG 09**

CONT.... FROM PG 08



These changes have been facilitated by a fresh approach from institutions and countries that were previously opposed to nuclear. For example in 2021, after decades of hostility, the European Commission finally included nuclear in its taxonomy of environmentally sustainable economic activities.

More recently the World Bank, which hasn't backed a nuclear project since 1959 announced that, in partnership with the International Atomic Energy Agency, it will now support life extensions of existing reactors. The nuclear industry hopes the Asian Development Bank may follow suit.

A few weeks ago Germany, Europe's biggest economy, elected a new Chancellor. Despite opposition from his coalition partners he promised to prioritise low carbon technologies, including small and advanced nuclear reactors ("SMRs").

These winds of change are blowing when leading Chinese, Russian and South Korean vendors of nuclear reactors, to mention just three, are competing for business and offering buyers attractive financial deals. The non-aligned status of many African countries allows them to exploit this situation.

The rollout of SMRs, a potentially game-changing development, is now set to begin. Their size enables them to be deployed in places which hitherto have been too small for large reactors, though it's too early to judge how much the use of factory-built components can cut costs.

SMRs will deliver the benefit of nuclear energy to thousands of communities for the first time. People living near coal fired power stations will enjoy cleaner air and longer lives after these old plants are replaced by new nuclear. The latter will also provide secure, well-paid jobs in clean working environments.

All these factors are particularly relevant to Africa. They open up a timely opportunity for the continent, with the youngest population on earth, to lead the world into a new era of low carbon energy.

The extent of this opportunity is illustrated by the contrast between two very different recent summit meetings in Canada and Kuala Lumpur.

President Trump's preparations for the G7 in Alberta involved continuing to undermine the concept of a rules-based international order and parroting the Kremlin's favourite talking points at the expense of America's longstanding allies.

Two weeks earlier, the joint ASEAN/Gulf Cooperation Council/China summit had focused mainly on economics and on deepening south-south trade. Its communique contained a robust defence of multilateralism and a positive reference to the Paris Climate Accord.

It's not hard to see which of the two summits would have been comfortable for Africa and which would provide the best conditions for future investment in nuclear power.

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STRATEK GLOBAL HOSTS MASTERCLASS ROUND TABLE ON SMRS AT ENLIT CONFERENCE IN CAPE TOWN

OLIVIA VAUGHAN

CAPE TOWN, SOUTH AFRICA – ON THURSDAY 22 MAY 2025, STRATEK GLOBAL HOSTED A HIGHLY SUCCESSFUL MASTERCLASS ROUND TABLE AT THE ENLIT CONFERENCE IN CAPE TOWN, TITLED: **SMALL REACTORS, BIG POTENTIAL: INVESTING IN SMRS FOR AFRICA'S ENERGY FUTURE.**

The event drew an enthusiastic crowd, with the gallery packed and the table fully occupied, as attendees eagerly engaged in discussion about the transformative potential of Small Modular Reactors (SMRs) for Africa's energy landscape.

The session featured key insights from Stratek Global's French EPC partners, Groupe Albatros, represented by Director Alain Preaut, and specialist insurance brokers, Howden International, represented by Director Paul Turner. The discussion highlighted nuclear energy as the cleanest, most reliable energy source with the smallest geographical footprint, positioning SMRs as a game-

Key Themes for SMR Rollout in Africa

The round table highlighted several critical factors for the successful deployment of SMRs across the continent:

Structured Funding and Government Support: Robust funding mechanisms, including regulatory support and tax incentives, are essential to drive SMR adoption.

Streamlined Regulation: Cutting bureaucratic red tape and ensuring policy continuity beyond election cycles is vital for generational energy security.

Education and Awareness: Introducing nuclear energy and broader energy topics into school curricula was proposed to build long-term foundational understanding.

Community Engagement: Government-backed public participation initiatives are crucial to foster trust and support for nuclear projects.

Industrialisation and Decentralised Grids: SMRs align with Africa's need for industrial growth and decentralised energy systems, offering scalable and reliable power solutions.

Economic Growth: The availability of electricity directly correlates with GDP growth, with SMR fleets poised to drive rapid economic expansion through their ripple effects.

Strategic Opportunities: South Africa's geographic advantage in telecommunications makes SMRs a catalyst for powering data centres, supporting the growing demands of AI and digital infrastructure.

CONTINUED ON PG 11

Global Perspectives and Investment Opportunities

Alain Preaut of Groupe Albatros shared insights from France, where the company is involved in developing a privately owned gas cooled micro-reactor on private land. He noted that the regulatory process with the French authorities is progressing smoothly, bolstered by France's experience operating 56 nuclear reactors and exporting power to neighboring countries.

Howden International highlighted a favourable shift in the insurance market, with London's Lloyd's expressing keen interest in leading SMR-related coverage.

Following a $500 million loss on a U.S. solar installation and a move away from insuring fossil fuel-based energy, underwriters are increasingly drawn to nuclear energy's strong loss ratio. This growing appetite is expected to provide investors with the confidence of A-rated financial backing.

The round table also emphasized the critical role of private sector investment and the need for development and commercial banks to revise their mandates to support the nuclear industry, particularly in light of rising energy demands driven by AI.

Related article

Sunday Times: Nuclear plans 'must prioritise local suppliers'

https://www.timeslive.co.za/sunday-times/business/business/2025-06-22-nuclear-plans-must-prioritise-local-suppliers/

Alain Preaut Director of Groupe Albatros, Francois Reyneke Finance Director of Stratek Global, Olivia Vaughan Commercial Director of Stratek Global

A Vision for Africa's Energy Future

The masterclass illuminated the immense potential of SMRs to deliver clean, reliable, and scalable energy to support Africa's industrial and economic ambitions. With strategic partnerships, supportive policies, and growing investor confidence, SMRs are ready to play a pivotal role in shaping a sustainable energy future for the continent.

For further inquiries, contact Olivia Vaughan at Stratek Global: +27 76 824 6776.

Stratek Global is committed to advancing Africa's energy security through innovative nuclear solutions.

NUCLEAR POWER IS RENEWABLE

JOHN DROZ

As a physicist, I believe that one of the reasons that intelligent energy policies have not gained sufficient traction is that we are allowing those with political agendas (vs independent scientists) to define some key energy terms.

Outside of "fiscal responsibility" and "all of the above" the most significant misused concept that we have unwittingly gone along with is the term "renewable" energy.

Giving some critical thought to this moniker is no academic matter, as what is defined as "renewable" determines what sources of electricity are eligible for massive handouts and other preferential treatments. In other words, what is legally defined as a "renewable" will have profound technical, economic, and environmental consequences on the United States, and the world.

The "renewable energy" lobby is extremely aggressive on all aspects of legality, and has made sure that only politically-favoured energy sources are awarded these perks. Note that in that definition, "renewable" energy is not defined by what it does (or does not) do, but rather by a list of politically acceptable sources!

To my knowledge, there is no "official" definition of this bandied-about term. When asked, the meanings proffered vary quite a bit, but the key difference between a "renewable" and "non-renewable" energy source is usually the rate of replenishment. Consider this typical definition: "Renewable is an energy resource that is replaced in a reasonable amount of time (our lifetime, our children's lifetime)..."

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The reason the definition of "renewable" is focused on time, derives from the concern that we may exhaust some electrical energy sources, relatively soon.
But how much is enough to have? For instance, if we have 100 years of some fuel, would the replenishment rate really be that important?

Clearly, within the next 100 years of use, there will be some profound changes made regarding the efficiency and applications of said fuel's implementation — in ways we have little understanding of today.

In 1950 there were well-reasoned expectations about what would happen in the year 2000. The message now is that almost ALL of the best guesses were wrong.
In that light, let's look at the case for nuclear being "renewable."

First, we should answer; how much longer will our nuclear fuel supply last.

***Note:** "The Organization for Economic Cooperation and Development (OECD) and the International Atomic Energy Agency (IAEA) in 2008 jointly produced a report saying that uranium resources are adequate to meet nuclear energy needs for at least the next 100 years, at present consumption levels. More efficient fast reactors could extend that period to more than 2 500 years."

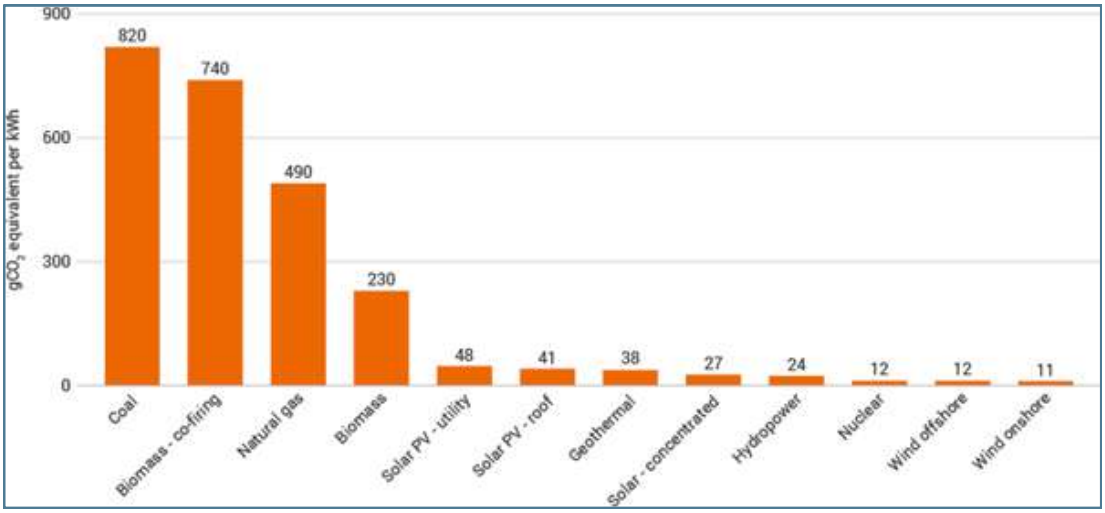
- It is absurd to say that a 2 500-year supply doesn't qualify as "renewable".

- In addition, there are several proven alternatives to uranium as a source. One example is Thorium (which is much more plentiful than uranium).
- Breeder reactors have enough raw material energy sources to last us over a Billion years. That's Billion with a "B".

Hard as it might seem to believe, most of this nuclear development has occurred in just the tiny space of 50± years — so having any fuel supply that lasts 100± years would cover an enormous amount of new development.

Second, some definitions of "renewable" include a reference to "power derived from natural sources". Of course, that is amusingly non-descriptive, since essentially all sources of electrical power are based on natural materials, and that includes nuclear.

Third, factor sometimes appearing in the definition of "renewable" is a reference to a power source's ability to reduce CO_2 (i.e., to be a "clean" source).



CO_2 Emmissions Equivalent per kWh.
As can be seen Nuclear is totally comparable to wind, without all the downside of wind.

CONTINUED ON PG 14

CONT.... FROM PG 13

Now, for the sake of comparison, let's quickly look at the flip side of this question, at the poster child for "renewables": wind energy.

The indisputable fact is that an indispensable part of wind power electricity production is the requirement of LARGE amounts of rare-earth metals. Each wind turbine is reported to have nearly a ton of magnets per MW. Of this, some 30% is rare-earth materials. An average-size wind turbine today is something like 5 MW.

I could go on, but just considering this information, which is the true renewable: wind energy, or nuclear power?
.

John Droz received undergraduate degrees in Physics and Mathematics from Boston College in the US, a graduate degree in Physics from Syracuse University, and has been a Mensa member. He worked as a physicist for GE Aerospace Electronics, Mohawk Data Sciences, and Monolithic Memories.

After retiring at age 34, he has focused on educating citizens about technical issues ranging from Education to Election Integrity, Climate to COVID, and Renewables to Religion. His underlying concern is that these policies should be based on genuine Science, but instead they are often about political science — which guarantees inferior results.

John has been a guest speaker on numerous radio, TV shows, podcasts, etc. nationwide, as well as been a presenter to many organizations, in addition to publishing more than one hundred reports and articles on these issues.

Among other things John is on the North Carolina Oil & Gas Commission, is a member of the CO_2 Coalition, the National Association of Scholars, and was the US Ambassador for the Global Climate Intelligence Group (CLINTEL).

John is the founder of Alliance for Wise Energy Decisions (AWED), an international coalition promoting science-based climate and energy policies.

John publishes the free Media Balance Newsletter twice a month, and it covers a wide-range of topics not adequately addressed by the mainstream media. Readership is 20,000± worldwide.

John now posts weekly on Substack, where his commentaries discuss the importance of Critical Thinking about our societal issues.

TSHWANE ENERGY SUMMIT NUCLEAR POWER FOR PRETORIA

At the Tshwane Energy Summit, held at the CSIR Conference Centre in Pretoria on 13 June, the case was made for the Municipality to immediately start planning to build small modular nuclear reactors around the Tshwane municipal region.

Dr Kelvin Kemm, Chairman of Stratek Global, a local nuclear project management company, pointed out that SMR's could supply reliable and stable electricity by being sited around the Municipal area, or be clustered together in groups of two or four. The area required for each group is only the size of a football field.

Of great importance is the fact that the HTMR-100 nuclear reactor was designed within the Tshwane Municipality and is now ready to build. South Africa was the first country in the world to start designing a commercial SMR. This initiative has now spread around the world, such that many countries are now also pursuing an SMR development.

Not only will the building of such reactors supply reliable electricity for decades to come, but will also provide many high-grade jobs.
Even more exciting is the potential for the export of the reactor worldwide. Enquiries have already been received from a number of African countries, also from the Middle East, the Pacific Rim, Europe, and Asia.

Stratek Global is also currently in talks with a number of international funders.
The HTMR-100 reactor has been designed to be 'Walk-Away safe' which means that even under the worst accident scenario the reactor cannot release radiation or result in any dangerous situation. It will merely shut itself down over a few days, without any human intervention. **CONTINUED ON PG 16**

In addition, Dr Kemm pointed out that the Hi-Tech uranium fuel needed for the reactor has also been totally locally developed. Furthermore, various fuel designs for more than one company in the US have been developed locally, due to the advanced technology developed in the local area.
Dr Kemm appealed for the Municipality to exhibit some longer-term vision and to embark on a serious energy program. He complained that there has been far too much very short-term thinking for some years now, and that it is time that the authorities exhibited the wisdom to truly step into the 21st Century, by looking ahead a number of years and planning for a substantial reliable electricity supply under Municipal control.

Two other large municipalities, and one other province, have already asked for submissions concerning SMR development in their areas. The necessary submissions have been supplied.

RELATED ARTICLES

“Summit hears Pretoria company’s small nuclear reactor offers independence”

https://www.citizen.co.za/rekord/news-headlines/2025/06/20/summit-hears-pretoria-companys-small-nuclear-reactor-offers-independence/

“Tshwane energy summit pushes for small nuclear reactors as future power solution”

https://www.citizen.co.za/rekord/news-headlines/2025/06/18/tshwane-energy-summit-pushes-for-small-nuclear-reactors-as-future-power-solution/

NUCLEAR NETWORK AFRICA

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.

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www.stratekglobal.com

Editor: Heather Veldhuis

Email: heather@stratekglobal.com

Cell: +27 (0)83 625 0316

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

heather@stratekglobal.com

Rachel has been involved with Stratek Global and our nuclear projects for over 10 years. She handles sales and marketing functions related to conferences, meetings, brochures and publications like N²A