ASP isotopes

Corporate Overview

March 2023

Forward Looking Statements

This presentation contains "forward-looking statements". Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Forward-looking statements can be identified by words such as "believes," "anticipates," "expects," "estimates," "projects," "will," "may," "might" and words of a similar nature. Examples of forward-looking statements include, among others, statements we make regarding expected operating results, such as future revenues from the potential commercialization of the Mo-100 isotope, and our strategy for product development, engaging with potential customers, market position, and financial results. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. There are many important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements, including: our reliance on the efforts of third parties; our ability to complete the proposed Mo-100 enrichment plant or to commercialize the Mo-100 isotope using the ASP technology; the financial terms of any future commercial arrangements; our ability to complete certain transactions and realize anticipated benefits from acquisitions; dependence on certain IP rights of third parties; and the competitive nature of our industry. Any forward-looking statement made by us in this presentation is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement whether as a result of new information, future developments or otherwise.

Industry and Market Data

This presentation includes market and industry data and forecasts that we obtained from internal research, publicly available information and industry publications and surveys. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Unless otherwise noted, statements as to our potential market position relative to other companies are approximated and based on the above-mentioned third-party data and internal analysis and estimates as of the date of this overview. Although we believe the industry and market data and statements as to potential market position to be reliable as of the date of this presentation, we have not independently verified this information and it could prove inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions regarding general economic conditions or growth that were used in preparing the forecasts from sources cited herein.

Introducing ASP Isotopes: Harvesting Nature's Resources

ASP technology is a low capital cost and environmentally friendly production of isotopes

- Isotope enrichment facilities using ASP technology can be constructed at a fraction of capital cost and time vs. traditional isotope separation facilities.
- The plants can be small in footprint and modular in design, allowing for capacity expansions along with growing demand.
- Our isotope enrichment plants are designed to be environmentally friendly: harvesting and enriching <u>natural mix of isotopes</u> – not by-products from nuclear energy reactors. During production of enriched highly valuable products, ASP plant produces no waste at all (not radioactive or any other waste in any form).

ASPI aims to deliver reliable, cost-effective and a politically acceptable supply of isotopes supply during extended period of geopolitical uncertainty

- Recent geopolitical events have made governments and companies around the world reassess their reliance on Russia and China for production of isotopes.
- Planned phase-out of 9 out of 10 small old research nuclear reactors over next 8-10 years creates a large gap in global supply for Mo-99 and other isotopes, hence large scale and numerous growth opportunities.
- First isotope enrichment facility commenced operations in March 2023 and should generate revenues during 2H 2023. Second isotope enrichment facility expected to be mechanically complete in 2H 2023 with revenues expected shortly after. Large backlog of demand requires additional plants for other isotopes in both USA and International.

Superior proprietary ASP technology and favorable long-term market trends are expected to drive market acceptance of our isotopes

What are isotopes?

Isotopes are like identical twins or triplets: very similar in most aspects, except for subtle few differences.

Isotopes are two or more types of atoms of the same chemical element that have same number of protons and electrons (hence the same chemical properties), but slightly different number of neutrons (hence slightly different weight and physical properties).

In nature isotopes are mixed together, just like M&M chocolate candies: same composition, same taste, same size – just different colors. Isotope separation process should sort them out into fraction of exactly the same types.

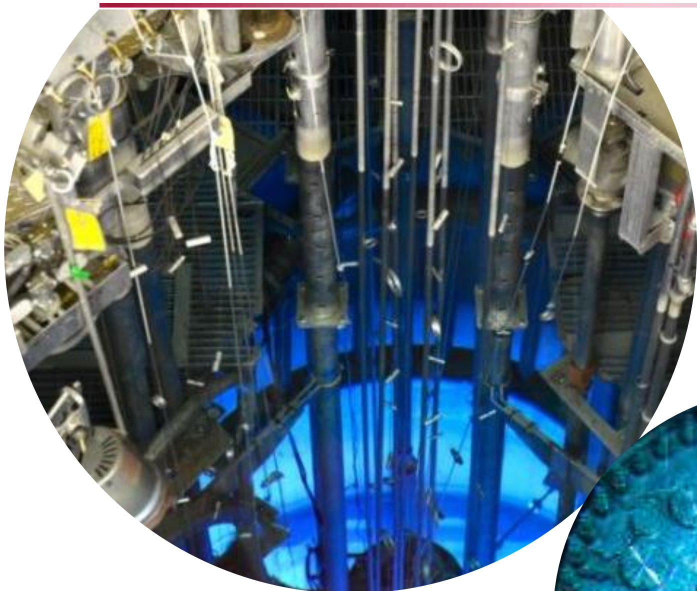
This separation process is very challenging and expensive precisely because isotopes are so similar to each other, with only minor weight differences.

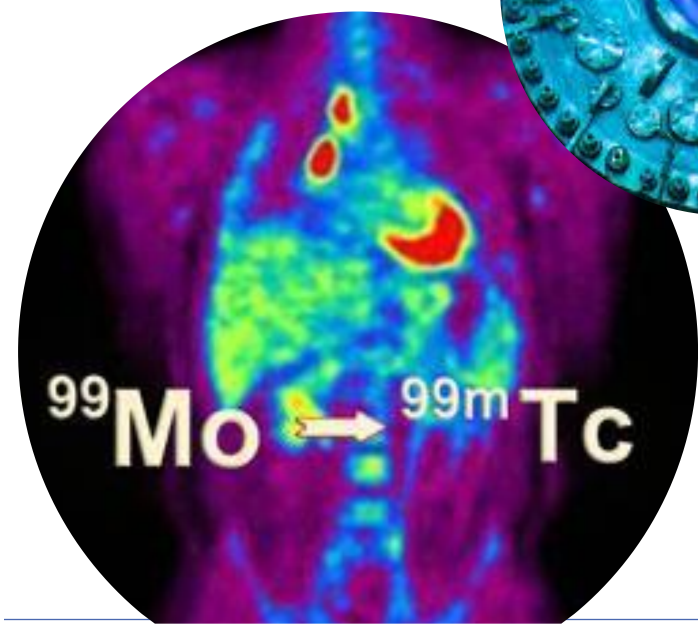
Molybdenum (Mo) has 7 stable isotopes, where Mo-100 content in the natural mix is only 10%.

Mo-100

Our aim is to increase (enrich) Mo-100 content from its natural 10% content to required >95% purity product

Isotopes in Various End-Markets





The separation of isotopes has been important during the past century, enabling key activities:

- Improved medical diagnostic imaging and the treatment of various diseases and cancers
- Generation of green nuclear energy
- Advanced analytical methods for industrial applications
- Geological experiments and radiocarbon dating
- Food irradiation to reduce pathogens

In the foreseeable future separation of new isotopes may catalyze new exciting breakthroughs:

- Quantum computing
- Advanced medical therapies and diagnostic procedures
- Satellites and spacecrafts

Renaissance of Isotopes: 1) Disruption and Shift in Supply

Existing supply chains for established isotopes are fragile with a worsening outlook

- Almost all (9 out 10) old nuclear reactors that currently produce the global supply of molybdenum-99 are expected to stop production during the next 10 years.
- Many countries have a desire to be self sufficient in isotopes that are essential to everyday life
- Due to its active nuclear program, Russia has been a large producer and exporter of many critical isotopes that many Western countries have become reliant on. Recent geopolitical events have made many countries try to become more self-sufficient, notably with suddenly strong preference for non-Russian isotopes (and also preferably non-Chinese isotopes).
- ASP technology is ideally suited for small enrichment facilities that can produce highly specialized isotopes or allow a country to become self sufficient in a particular isotope.

Recent Disruptions in Supply and Forthcoming Re-Balance

- Recent geopolitical events mean that purchasers of isotopes are re-evaluating who and where their suppliers are.
- Many countries are reliant on suppliers in other countries for isotopes that are essential to everyday life.

The global and regional supply/demand for isotopes is at an inflection point. Our goal is to become a leading producer of isotopes for specialist applications

Renaissance of Isotopes: 2) Growth in Demand

Steady Historical Demand for medical isotopes has been growing at a stable rate of 4-5%/year, driven by aging population in many large countries and growth in medical diagnostics and procedures.

New isotopes for emerging medical diagnostics will likely be critical in future, in addition to other industries

Healthcare innovation

Drive long lasting, durable demand for medical isotopes for many decades, such as: Molybdenum -100 and -98,

- Zinc-68 – for the production of Gallium 68 which is used in PET (positron emission tomography) scans
- Ytterbium-176 –emerging as a better method of producing Lutetium-177, which is an emerging therapeutic in oncology
- Nickel-64–used to produce Copper-64, used in radioimmunotherapy
- Carbon 14 – Historically single sourced from a supplier in Russia

Quantum Computing

and other new technologies will likely require isotopes such as Silicon-28

Energy production with a low carbon footprint

In the future will likely require isotopes such as U-235 (HALEU), Lithium-6 (For Nuclear Fusion Reactors) and Chlorine-37 (for Molten Salt Reactors), for which there are currently no Western producers. The global supply of Li-6 and -7 isotopes has historically involved the use of mercury and been limited to China and Russia.

Isotopes of Our Interest

Isotopes	End-Market	R&D Stage	Ready for Construction	Under Construction	Commercially Available
Silicon-28	Quantum Computing				
Carbon-14	Pharma and Agrochem				
Molybdenum-100	**Healthcare**				Available in 2H'2023
Molybdenum-98					Available in 2H'2023
Zinc-68	**Healthcare**				
Ytterbium-176					
Zinc-67					
Nickel-64					
Xenon-136					
Chlorine-37	**Clean Nuclear Energy**				
Lithium-6					
Uranium-235					

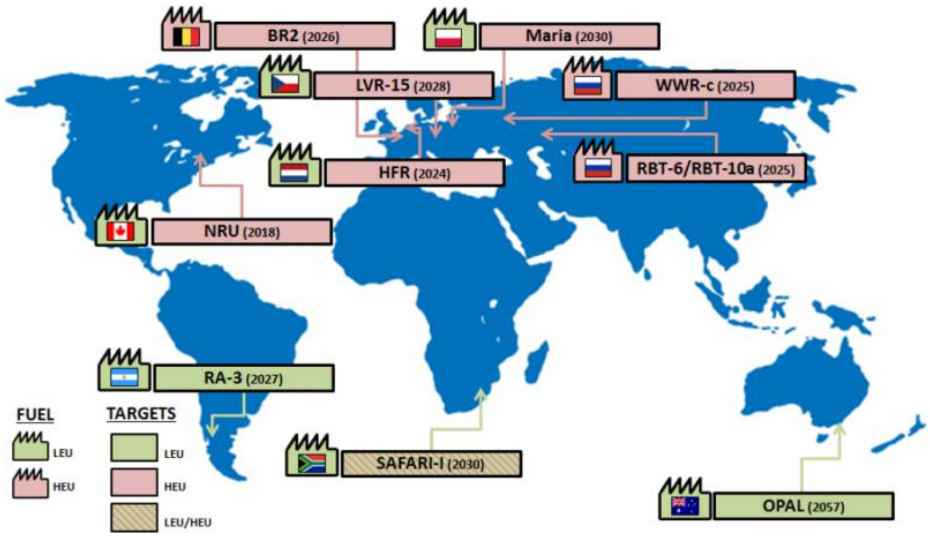
The world requires a new supplier of Carbon-14

Russia has historically been responsible for the entire global supply of Carbon-14. Historically there have been supply side shortages. These have been exacerbated since the Feb 2022 Russian invasion of Ukraine.

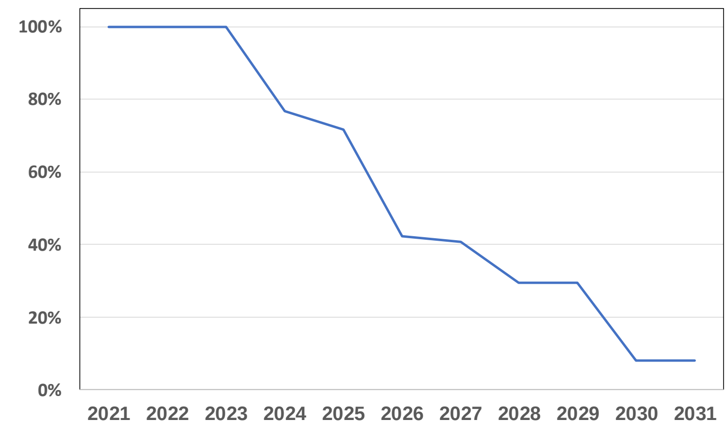
- There is an urgent need for enriched Carbon-14, which is used as a tracer in the development of pharmaceuticals, agrochemicals and other consumer products.
- Our enrichment facility in Pretoria, South Africa can enrich up to 200 grams of 90% enriched carbon-14 and with modest investment, up to 600 grams/yr.
- We have entered an MOU to produce Carbon-14 for quantities that will be sufficient to meet the entire global demand.
- **Our light isotope enrichment facility commenced operations in March 2023. We expect to enter commercial production by late 2023. This plant should quickly generate substantial amounts of free cash flow.**

- Radiolabeling is a scientific technique used to track the passage of a molecule. The technique incorporates a radioisotope through a reaction, cell, organism, biological system, or metabolic pathway.
- Carbon-14 is the most frequently used radiolabel compound in studies of drug discovery, drug metabolism, and pharmacokinetics. Carbon naturally exists in many drug molecules, and thus it provides better radiolabeling sites.

Mo-100 and Mo-98 are large opportunities



Potential Reduction in Mo-99 supply due to planned retirement of old nuclear reactors



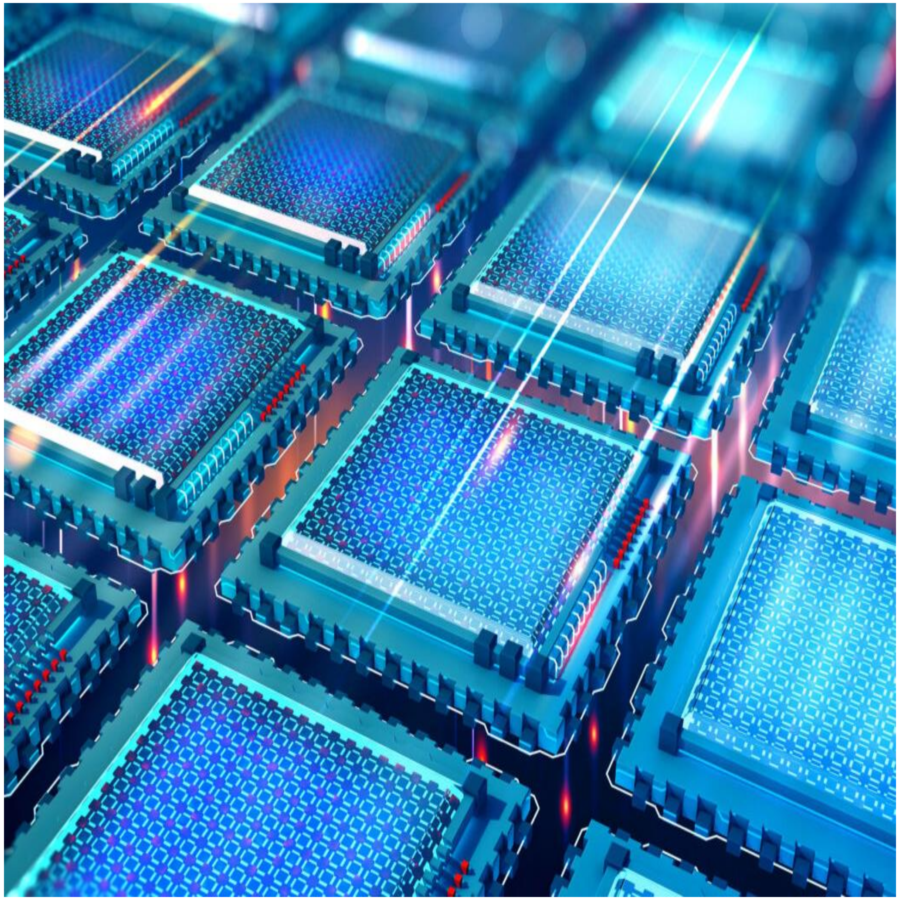
Upcoming Retirement of Majority (9 out of 10) Mo-99 Supplying Plants in the next 10 years

Our initial focus in on the production of Mo-100, a competitor to existing Mo-99, which is currently used to produce technetium-99m, the most frequently used imaging radionuclide. The Mo-99 supply chain is highly complex and plagued by regular supply interruptions, with serious negative implications for both hospitals and patients. Our Mo-100 is a viable competitor to Mo-99, **$3.5 B Global market.**

In November 2022 we signed a 25 year supply agreement with BRICEM (Beijing Research Institute of Chemical Engineering Metallurgy) for the supply of Highly Enriched Mo-100 valued at up to $27 million in revenues per year.

Source: National Academies of Sciences, Engineering, and Medicine; Nuclear and Radiation Studies Board. Wash (DC): National Academies Press (US); Feb 2018

The world is at an inflection point for Silicon-28 demand



- Our current plant in S. Africa is operational since 2018, produced several Kg of Si-28 enriched to 98%.
- In anticipation of significant greater demand, we are in the early stages of constructing a larger, more powerful plant that will be capable of producing >30 Kg/yr of Si-28 enriched to a level of 99.995%.
- Depending on demand growth, we are capable of producing hundreds of Kg by 2030. We expect to be the lowest cost producer of Si-28 globally for the quantum computing industry and other high tech industries requiring ultra-pure silicon-28.
- We expect to repurpose our existing Si-28 facility to be capable of enriching other light isotopes (such as C-14, N-15 and Ne-20/21/22).

- Quantum Computers are expected to be 1,000x more powerful than today's conventional computers and to create new opportunities in medicine, artificial intelligence, cybersecurity, finance, logistics and other industries.
- Quantum Computing required ultra-pure Si-28 – which is currently not available at any price on commercial scale.
- ASPI could purify natural Si mix of isotopes which may allow for higher performance of Si-based chips.

Why Uranium is becoming interesting (again)

Increasing demand for nuclear fuel

US and European countries moving to revitalize nuclear industries

- Global energy demand continues to increase driven by population growth and industrialization
- Renewed focus on de-carbonization (net-zero 2050 target)
- Growing acceptance that nuclear energy is likely the only environmentally friendly approach to provide a stable energy baseload to a large population.

Energy Security

Many countries are looking to become more self sustainable in their supply of energy

- Russia is responsible for 39% of global uranium enrichment
- The United States currently imports 95% of its uranium requirements and 70% of its enrichment requirements from overseas.

Increasing focus on nuclear power

- **UK** plans to build 8 new nuclear power plants to increase nuclear power from 15% to 25% of the mix by 2050
- **France**: plans to build up to 14 new large reactors. **Germany** & **Belgium**: reversal of nuclear phase-out plans
- **Japan**: targeting 22% of electricity generation from nuclear by 2030. **China**: 54 operable reactors, 21 under construction and another 199 reactors planned or proposed
- **United States**: Bipartisan support for nuclear power with billions of dollars of incentives already paid

Our Contribution to US Commitment to SMR

- **We believe that ASP technology is capable of enriching uranium.** Current centrifuge technology that is employed to enrich uranium utilizes UF6 gas; our molybdenum enrichment facility will enrich MoF6 gas, which is similar to UF6.

- **For the production of HALEU, our solution would involve:**
  - Taking LEU at 5% enrichment and then further enriching it to 15 - 19.75%
  - Produce tails with U-235 content at 0.71% which is equivalent to naturally occurring Uranium – no nuclear waste

- **Given the small scale of this proposed enrichment facility, we believe our technology has many benefits over competing technologies;** our modular and low capital cost approach lend themselves well for this end market.

Next Steps in U-235 Project

Conduct bench test

Demonstrate effectiveness of ASP for U-235 enrichment

Conduct Partner discussions

Find potential partners that may be interested in using ASP technology

Scale up and build for Global Needs

Deliver ASP technology to address future SMR demands

Opportunities in Other Isotopes

Zn-68 Important isotope in radio-diagnostics

- Zinc-68 can be converted to Gallium-68 in a Cyclotron.
- Ga-68 dotatate is a radiopharma tracer used during PET scans.
- Ga theranostic pairs are also used for the treatment neuro-endocrine tumors in combination with various somatostatin analogs.

Cl-37 For use in Molten Salt Reactors

- Molten Salt Reactors (MSRs) are nuclear reactors that use a fluid fuel in the form of very hot fluoride or chloride salt.
- Over 6 companies are developing molten salt reactors.
- TerraPower and Southern Company are developing a molten chloride fast reactor (MCFR) that uses liquid salts as both a coolant and fuel.
- The design uses liquid chloride salts as the coolant and fuel that flows through the reactor core—allowing the fission to directly heat the salts.
- The chlorine-37 used in MCFRs likely needs to be enriched to between 75% and 99%.

Yb-176 - an important isotope for oncology

- Ytterbium-176 is emerging as a better method of producing Lutetium-177, which is an emerging therapeutic.
- The direct production of Lu-177 involves the irradiation of Lu-176 with neutrons in a nuclear reactor. The indirect route involves the neutron capture of Yb-176 to create Yb-177 which then decays to Lu-177.
- There is currently 1 approved treatment using Lu-177 and 66 clinical trials ongoing for further uses.

Li-6… Enabling Nuclear Fusion

- Natural lithium contains two isotopes: 6 (7.5%) and 7 (92.5%).
- Lithium-7 hydroxide is used in kilogram quantities for alkalizing of the coolant in pressurized water reactors.
- Highly enriched Lithium-6 has been used for military purposes in nuclear weapons.
- There is an emerging need for lower enriched levels of Lithium-6 for nuclear fusion, which is a promising energy source being developed in both the United States and Europe.
- In a fusion reactor, deuterium and tritium are used as a fuel. Deuterium is widely available but tritium is not and must be “bred” using Lithium 6.

Two Major Dimensions of ASPI

ASP Isotopes Inc. (Delaware, USA)

ASP Isotopes

- Low volume, high priced products
- Near-term focus is on Molybdenum-100 and Carbon 14.
- Two manufacturing plants to enter commissioning phase in early 2023
- Commercial production Mo-100 and C-14 anticipated in late 2023/ early 2024
- Longer term opportunities exist in the enrichment of Silicon-28, Lithium-6, Oxygen-18, Zinc-68, Xenon-136 and Ytterbium-176.

These compact, moderate CapEx plants to be self-financed (equity + debt) and wholly-owned

Enriched Energy LLC

- Higher volume, high value, medium priced products
- New forms of Nuclear Energy will require new forms of fuel. Currently there is no Western producer of these isotopes.
- We believe that we will be the lowest cost western producer of HALEU (High Affinity Low Enriched Uranium-235), Lithium-6 and Chlorine-37.
- Considerable interest from potential partners and government agencies in the form of grants, partnerships and potential contracts.

These much larger and costly enrichment plants may be financed by a JV, debt and government grants.

Concluding Remarks

- **ASPI is proven and proprietary technology platform for environmentally friendly production of a wide range of isotopes. ASPI is highly competitive due to its modular design, low capital cost and fast construction cycle vs. competitors.**

- **Favorable long term market trends expected to drive long-term secular industry growth. Recent geopolitical events have created high urgency for companies and countries to reconsider friendly reliable sources of isotopes, opening large opportunities for ASPI.**

- **First isotope enrichment plant is operational. Construction of second isotope enrichment plant expected to finish in 2H 2023. Both plants expected to enter commercial production during 2H 2023 which should drive considerable free cash flow.**

- **ASPI could be applied to a wide range of other isotopes, driven by inbound strong interest from potential customers in medical and green energy end-markets.**

- **Strong free cash flow and high return on capital should enable ASPI to quickly ramp-up its production of isotopes with organic funding and project financing.**

Supplemental Background Information

- Company Leadership
- More details on Isotopes
    - Tc-99
    - Si-28
    - Uranium Fuel (HALEU) for SMR

Leadership Team of ASP Isotopes

Paul Mann, Chairman, CEO and CFO

Paul Mann co-founded ASP Isotopes in September 2021 and serves as the Chairman of our Board of Directors, Chief Executive Officer and Chief Financial Officer. Paul has more than 20 years of experience on Wall Street investing in healthcare and chemicals companies, having worked at Soros Fund Management, Highbridge Capital Management and Morgan Stanley. Paul started his career as a research scientist at Procter and Gamble and he is named as the inventor of numerous skin creams in the *Oil of Olay* range of cosmetics. Paul has an MA (Cantab) and an M.Eng from Cambridge University, UK. He is a CFA charter holder.

Sergey Vasnetsov, Vice-Chairman of the Board

Sergey Vasnetsov has served on our board of directors since October 2021. Since 2016 he is the founder of ChemBridges, strategy consulting firm. During 2010-16 he was Senior VP of Strategic Planning and Transactions at LyondellBasell (NYSE: LYB). Prior to that, Sergey was a Managing Director, Equity Research at Barclays Capital and Lehman Brothers. He started his career at Union Carbide in 1990. Sergey has a Master of Science in Catalysis from the Novosibirsk University, Russia. He was a George Soros Scholar at Oxford University (UK) and later earned an MBA in Finance from Rutgers University (US).

Hendrik Strydom, PhD, Director, Chief Technology Officer

Dr. Strydom has over thirty years of experience in isotope enrichment and co-developed the isotope separation technology, known as "Aerodynamic Separation Process" (ASP), which is the technology backbone of ASP Isotopes. Hendrik's work on separation of isotopes started when he was employed as a scientist at the South African Atomic Energy Corporation (AEC), where he specialized in the laser separation of heavy isotopes. Hendrik left AEC in 1993 to co-found Klydon, an isotope enrichment company based in South Africa. Dr. Strydom holds a BSc(Ed) (Physics & Maths) (1981), followed by the Hons course at the at University Pretoria (1983). Dr Strydom also holds an MSc (Physics) from the University of Port Elisabeth (1990), and a PhD (Physics) (2000) from the University of Natal (Durban).

Senior Management Team

Robert Ainscow, Interim Chief Financial Officer

Robert Ainscow Co-founded ASP Isotopes Inc in September 2021 and serves as the Chief Financial Officer. He has more than 20 years experience in Finance, where he worked at Global Investment Banks Morgan Stanley, Bear Stearns and Investec Bank. He started career in the Legal and Regulatory Department with responsibility for M&A and Capital Markets oversight before moving into the capital markets business units and becoming a Senior Transactor structuring a broad range of bespoke transactions and funding programs for balance sheet assets and on behalf of clients, more latterly for smaller, early-stage companies in niche markets as an advisor, director, or founder. Mr Ainscow holds a BA (Law & Modern Languages) from Bristol UWE in the UK.

Japie Grant, Senior Process Engineer

Japie Grant is a process engineer with 40 years of experience in isotope separation, simulation and project management. Japie started his career at the Uranium Enrichment Corporation of South Africa (UCOR) and specialized in the development of alternative cascading techniques for asymmetrical separation elements. Japie was the systems engineer responsible for the design and commissioning of four isotope separation plants using ASP technology. He holds an MSc in engineering from the University of Pretoria.

Ben Swanepoel, Senior Chemist

Ben Swanepoel has 44 years of experience in the petrochemical, nuclear, chemical process, aerospace and defense industries as chemical technologist, consultant and project manager. Ben was employed by various companies in South Africa such as Sasol, The Uranium Enrichment Corporation of SA (UCOR), The Atomic Energy Corporation of SA (AEC), Thermtron Technologies (as Technical Director) and Klydon. Ben holds a National Diploma in Chemistry (1978) and a Higher National Diploma in Chemistry (1986) from the Technikon Pretoria (currently the Tshwane University of Technology).

Hanlie Bosman, Project Manager

Hanlie Bosman has more than 20 years of experience in the chemical process, mining and renewable energy industries both as chemical technologist and structural engineer. Starting her career in development of chemical processes, followed by engineering projects in the mining and civil industry, Hanlie used this experience to act as consulting technical and project manager in engineering, procurement and construction projects over the last 8 years. Hanlie holds a BTech (Civil Engineering – Structural) (2015) – University of South Africa, BTech (Chemistry) (1996) – Tshwane University of Technology (Pretoria), Certificate in Engineering Management (2019) – University of Pretoria.

Chief Scientific Advisor

Einar Ronander , Chief Scientific Advisor

Prof Einar Ronander is globally recognized as a leading scientist in the field of isotope separation for medical and industry production. He has over 50 years of experience in isotope separation which covers the mass spectrum from very light isotope systems to very heavy isotope systems. The incumbent pioneered the ASP process in South Africa and co-developed the Intellectual Property and the industrial application. He also pioneered the Molecular Laser Isotope Separation (MLIS) and the Atomic Vapour Laser Isotope Separation (AVLIS) for heavy volatile isotopes at the South African Atomic Energy Corporation (1977 – 1997).

Einar has extensive knowledge base and experience in gas centrifuge separation, distillation separation, electromagnetic separation, infra-red lasers for MLIS, and visible lasers for AVLIS. Einar obtained a PhD (Physics) at the University of Stellenbosch, a PhD (Chemistry) at the University of Pretoria, he serves on the Advisory Board for Science (Univ. Stellenbosch), and the Steering Committee of the Laser Institute at University of Stellenbosch.

Einar serves as reviewer of global scientific papers for leading journals and his own published papers rate in the top 10% globally by citations standards, and he performs as invited speaker at global conferences and is an Extra Ordinary Prof (Physics).

Non-Employee Directors

Duncan Moore, PhD, Director

Duncan Moore, Ph.D. has served on our board of directors since October 2021. Duncan is a partner at East West Capital Partners since May 2008, which has a focus on making investments in the Healthcare Industry in Asia. Previously, from 1991 to 2008, Duncan was a top-ranked pharmaceutical analyst at Morgan Stanley leading the firm's global healthcare equity research team. Duncan was educated in Edinburgh and went to the University of Leeds where he studied Biochemistry and Microbiology. He has a M.Phil. and Ph.D. from the University of Cambridge where he was also a post-doctoral research fellow.

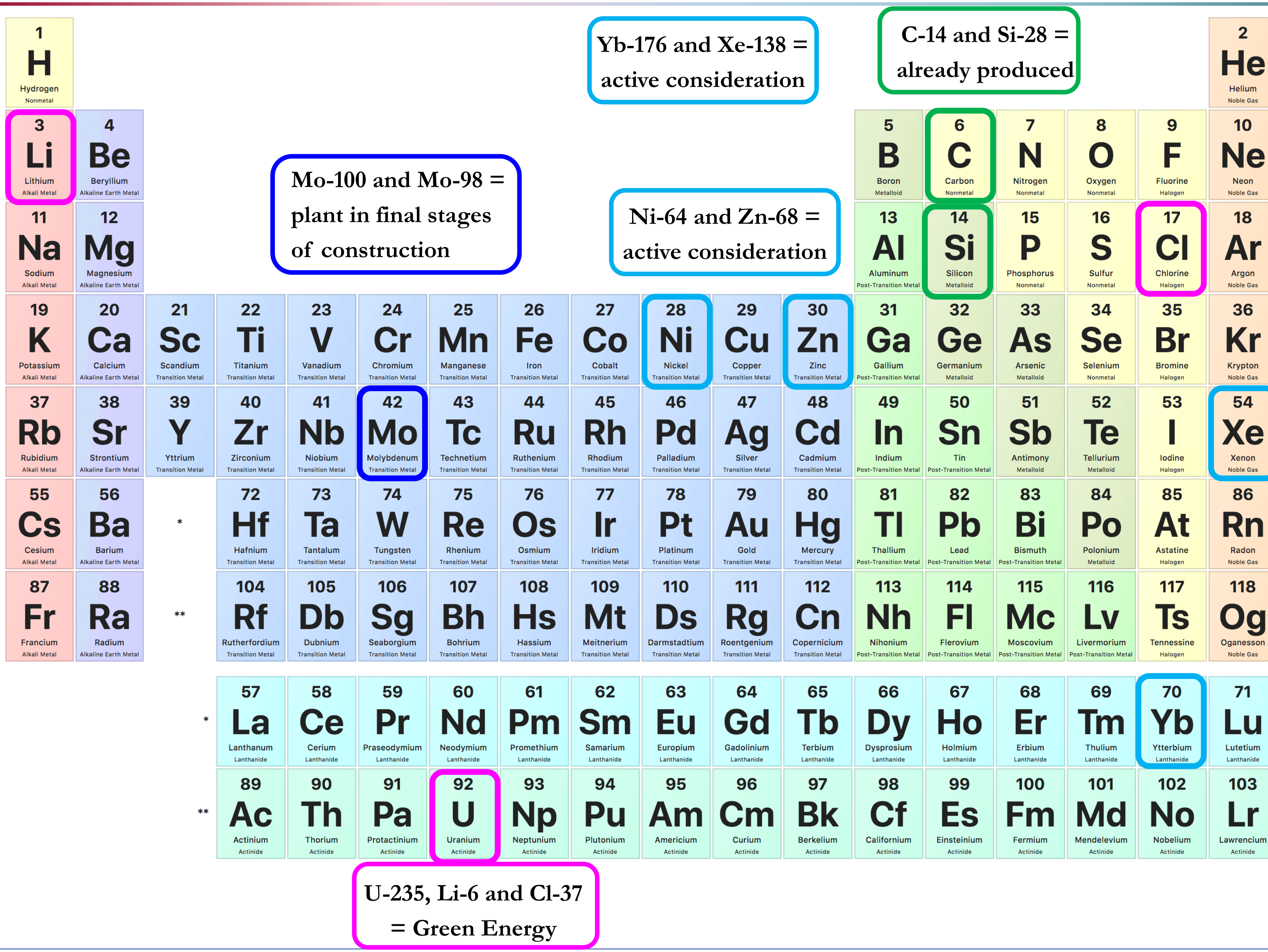
Todd Wider, MD, Director

Todd Wider, MD. has served on our board of directors since October 2021. Todd is the Executive Chairman and Chief Medical Officer of Emendo Biotherapeutics, which focuses on highly specific and differentiated next generation gene editing. Todd has served as a consultant to numerous entities in the biotechnology space. He is an attending surgeon at Mount Sinai West in New York City. Todd graduated from Princeton University, Phi Beta Kappa with High Honors, and received his MD from Columbia College of Physicians and Surgeons. Todd completed his surgery and plastic and reconstructive surgery residencies at Columbia Presbyterian Hospital and did additional fellowships at Memorial Sloan Kettering and the University of Miami in complex oncologic microsurgery and craniofacial surgery.

Joshua Donfeld, Director

Josh Donfeld has served on our board of directors since October 2021. He has had more than 20 years experience on Wall Street investing in multiple industries. Most recently Josh was a co-founding and co-managing partner of Castle Hook Partners, a New York-based investment management fund where he was responsible for overseeing the fund's equity investments in sectors such as healthcare and natural resources. Prior to Castle Hook, Josh was a portfolio manager at Soros Fund Management where he was responsible for managing a portfolio of assets across public and private investments in industries spanning Energy, Utilities, Materials, Industrials, Healthcare, Consumer, Infrastructure and Technology. Josh has extensive experience in early-stage investing and he has extensive experience in management, corporate finance and accounting. Josh graduated Magna Cum Laude from Princeton University with a BA in Economics and a focus on Chinese language/East Asian Studies.

Map of Our Isotopes Interests



ASP Technology creates Stable Isotopes more efficiently

Traditional Technology
Expensive and Capital intensive

- Traditionally, isotopes have been separated using a gas centrifuge, in which a cylinder spins extremely quickly, thus centrifugal forces allow heavier isotopes to get separated from lighter isotopes.

ASP Differentiation
Cost-effective proprietary design

- In separation, cylinder wall remains stationary, while the gas spins around rapidly due to pressure applied through very specifically positioned high pressure injection nozzles and flow directors
- **No moving metal parts in ASP design enables lower cost construction and simplicity in operations**; vs. traditional centrifuges, our ASP plants are expected to have low CapEx and subsequent maintenance, moderate consumption of electricity and labor; overall low cash production cost.

Future Roadmap
Enables long-term value capture

- ASP enrichment plants are designed to be modular and flexible: could be built fast in a wide range of locations and at a customized size
- ASP enrichment plants can enrich isotopes with a vary wide range of atomic masses and a wide range of temperatures. In lab testing we have used the technology to enrich isotopes from a mass of 16 to 300 and at temperatures of up to 270 ^{0}C. This makes the technology suitable for a wide range of customer needs.

ASP enrichment plants are expected to have attractive profit margins and high return on invested capital, based on long-term customer contracts for specific isotopes

Advantage of ASP vs. Competing Technologies in U-235

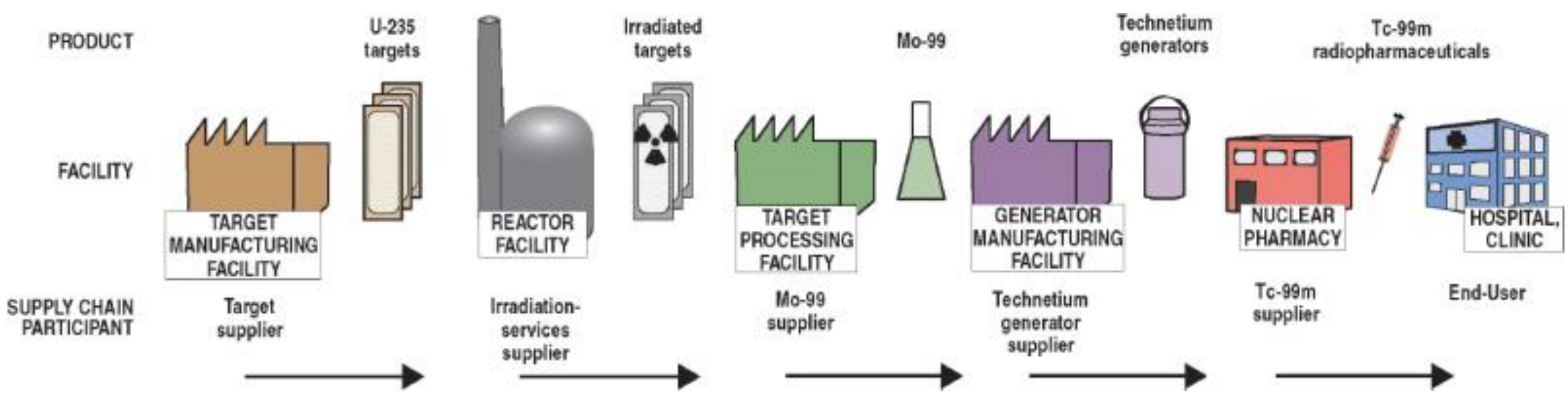
- ASPI has a robust, versatile platform of isotope enrichment technologies – which can offer solutions to the current problems of supply shortage and demand growth.
- ASP enrichment plants are expected to have high profit margins and high return on invested capital, based on long-term customer contracts.

Process	Separation Mechanism	Energy used for Separation	Energy Intensity, kWh/SWU	CapEx Cost / SWU
Diffusion	Differential diffusion through porous barriers	Mechanical	2,500	High
Gas Centrifuge	Differential diffusion	Mechanical	50 - 240	Very High
SILEX	Photon Induced Migration of Molecules	Photons Mechanical	500 - 1,500	Moderate
UCOR	Stationary Wall Centrifuge	Mechanical	> 3,000	Moderate
ASP	**Stationary Wall Centrifuge**	**Mechanical**	**< 500**	**Low**

Tc-99m Supply Chain - In Need of an Alternative Supply Source

- Tc-99m is produced from the radiological decay of Molybdenum-99, which is usually created commercially by the fission of highly enriched uranium in a small number of research and material testing nuclear reactors in several countries
- Molybdenum-99 has a half life of 66 hours adding to the supply side challenge. The activity of Mo-99 declines by about 1% per hour because of radioactive decay. It must be moved through the supply chain quickly to minimize decay losses
- Security of supply of both Mo-99 and Tc-99 is under constant strain, often due to interruption or breakdown of this supply chain with serious implications for hospitals and their patients

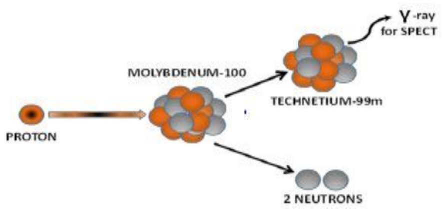
Many of the reactors that currently produce Mo-99 are >50 years old and are at risk being shut down over the next 10 years



Tc-99m can also be produced using Mo-100 or Mo-98

- Tc-99m can be produced using Mo100 or Mo98 either directly or indirectly
- Mo100 and Mo98 are stable and do not undergo radioactive decay; they can therefore be shipped and stored like traditional products, removing many supply chain issues associated with the current methods of producing Tc99m

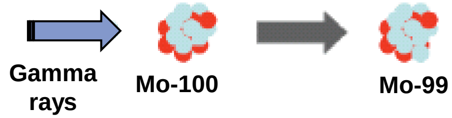
Direct



Production of Technetium-99m from Mo-100

- A cyclotron is used to bombard Mo-100 with a proton.
- Technetium-99m and two neutrons are produced.
- We believe this is a very cost competitive route to Tc-99m production.
- There are over 250 Cyclotrons globally that are capable of this.

Indirect



Production of Mo-99 from Mo-100

- A Linear accelerator is used to bombard Mo-100 with gamma-ray, producing Molybdenum-99.
- This Mo-99 can then be supplied to customers in an Tc generator
- There are only a few LINACs available worldwide.

Production of Mo-99 from Mo-98

- Neutron bombardment of Mo-98 produces Mo-99.
- This Mo-99 can then be supplied to customers in an Tc generator.
- There are very few companies or entities capable of this process.

Silicon-28 … Enabling Quantum Computing

Quantum Computers are expected to be 1000x more powerful than today's conventional computers and widely anticipated they will create new opportunities in medicine, artificial intelligence, cybersecurity, finance, logistics and other industries

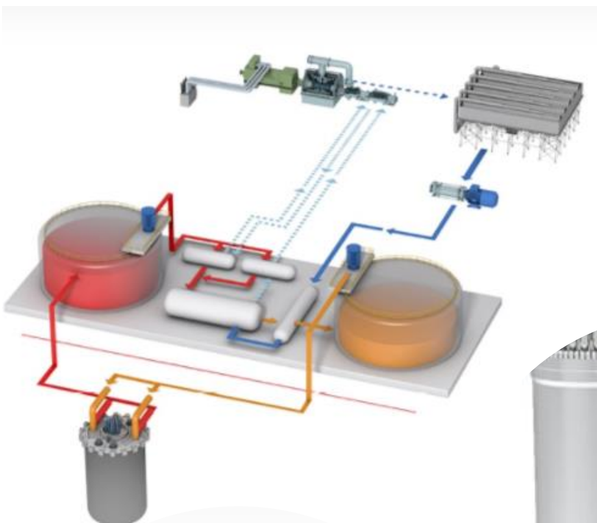
For the processing of Qubits, the semiconductor has to be extremely fast. The presence of Si-29 is a problem in quantum computing because it dominates the breakdown of quantum information, or "decoherence," of the qubits

- Instead of information being processed in nanometer-scale transistors with binary 'bits' which can have only two states (0 or 1), silicon-based quantum computer processors will utilize atomic-scale quantum spin effects with 'qubits' which can be in multiple superimposed states at the same time, thereby dramatically increasing the processing power in a miniscule fraction of the volume.
- An isotopically pure form of silicon has a thermal conductivity about 60% higher than naturally occurring mono-crystalline silicon. It is believed that isotopically enriched silicon may provide benefits to fiber optics and solar cells

ASPI could purify natural Si mix of isotopes which may allow for higher performance of Si-based chips

SMR (Small Modular Reactors) = Next Wave in Nuclear Energy

TerraPower's Natrium



X-Energy's Xe-100

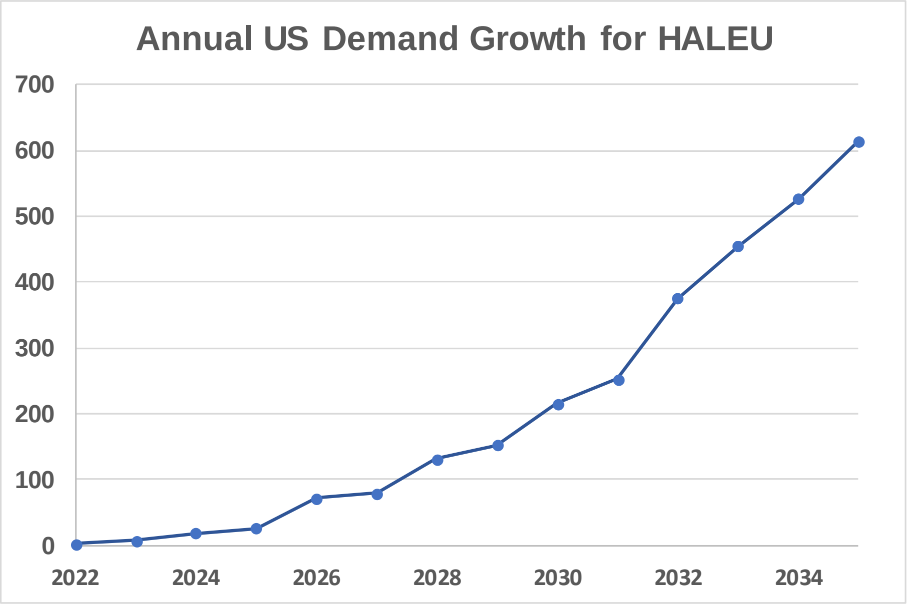
Rolls-Royce's SMR

The world is moving to a new type of nuclear reactor: SMR

- **Modular, smaller size** (50 MWe to 300 MWe) reactors allowing greater flexibility in deployment
- **Designed for production-line manufacturing** rather than conventional custom built capital projects
  - o Limited on-site preparation to substantially reduce lengthy construction times
  - o Simplicity of design, enhanced safety features, economics and quality afforded by factory production, and more flexibility (financing, siting, sizing, and end-use applications)
- **Can provide power for applications where large plants are not needed or sites lack infrastructure** to support a large unit (e.g., smaller electrical markets, isolated areas, smaller grids, sites with limited water and acreage, or unique industrial applications)
- **US DOE has already committed billions of dollars** to Advanced Reactor Design Program (ARDP) to facilitate and accelerate development of advanced reactors

HALEU Supply Issue Looming for SMR Reality

- Current commercial LWRs use low enriched uranium (LEU) which has less than 5% U-235 content.
- Many SMRs and advanced reactors will require High Assay Low Enriched Uranium (HALEU) with U-235 enrichment up to 19.75%.
- Currently there is no commercial source of the supply of HALEU in the Western World. Without fuel these SMR's are unlikely to become a reality.



- The U.S. government has made a multi-billion-dollar commitment to help commercialize HALEU-fueled advanced reactors. Inflation Reduction Act passed August 2022 - supporting nuclear power generation and domestic nuclear fuel supply including $700 Million funding for the DOE's HALEU Availability Program.
- The NEI estimates (below) that by 2035 US domestic demand for HALEU could reach >600 Metric Tons.

Source: Nuclear Energy Institute's (NEI) Outlook for Potential U.S. HALEU Demand