Corporate Overview

January 2025

Forward Looking Statements

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This presentation contains, and our officers and representatives may from time to time make, "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. 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 but are not limited to, statements we make regarding expected operating results, such as future revenues and prospects from the potential commercialization of isotopes, and our strategies 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, many of which are outside our control. Our actual results, financial condition and events may differ materially from those indicated in the forward-looking statements based upon a number of factors. Forward-looking statements are not a guarantee of future performance or developments. You are strongly cautioned that reliance on any forward-looking statements involves known and unknown risks and uncertainties. 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: the outcomes of various strategies and projects undertaken by the Company; the potential impact of laws or government regulations or policies in South Africa, the United Kingdom or elsewhere; our reliance on the efforts of third parties; our ability to complete the construction and commissioning of our enrichment plants or to commercialize isotopes using the ASP technology or the Quantum Enrichment Process; our ability to obtain regulatory approvals for the production and distribution of isotopes; the financial terms of any current and future commercial arrangements; our ability to complete certain transactions and realize anticipated benefits from acquisitions; contracts, dependence on our Intellectual Property (IP) rights, 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.

Market and Industry 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 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 information and forecasts from sources cited herein. All forward-looking statements herein are qualified by reference to the cautionary statements set forth herein and should not be relied upon.

ASP Isotopes: At a Glance

ASPI's advanced technology leverages 20 years of R&D history to enrich isotopes in varying levels of atomic mass. Our goal is to use innovative technology to become an indispensable supplier of enriched isotopes to three multi-billion-dollar end markets.

Medical

Opportunity to be one of the few producers in the undersupplied global medical isotopes market, which is anticipated to grow from $5.1bn in 2022, to $11.4bn by 2032, growing at a CAGR of 8.8%[2]. This will be driven by increasing prevalence of cancers, rising demand for personalised medicine, and growing technological advancements in diagnostic imaging modalities.

Semiconductors

The global semiconductor market is on track to surpass $1tn by 2030. ASPI has contracted with a global semiconductor company to supply large quantities of Silicon-28 through 2030 and beyond to allow the industry to unlock the significant performance benefits that arise from switching to Silicon-28 Nanowires.

Nuclear Energy

ASPI's subsidiary, Quantum Leap Energy ("QLE"), is looking to address the multi-billion-dollar opportunity in the nuclear energy sector, by applying our Quantum Enrichment technology to uranium to produce the essential fuels for next-generation nuclear power plants.

ASP Isotopes Inc.
Delaware, US
NASDAQ (ASPI)

PET Labs (Pty) Ltd
South Africa

51% Majority Stake

Quantum Leap Energy LLC
Delaware, US

Quantum Leap Energy (UK) Ltd
United Kingdom

Target Milestones – 2025

Market Target Milestones

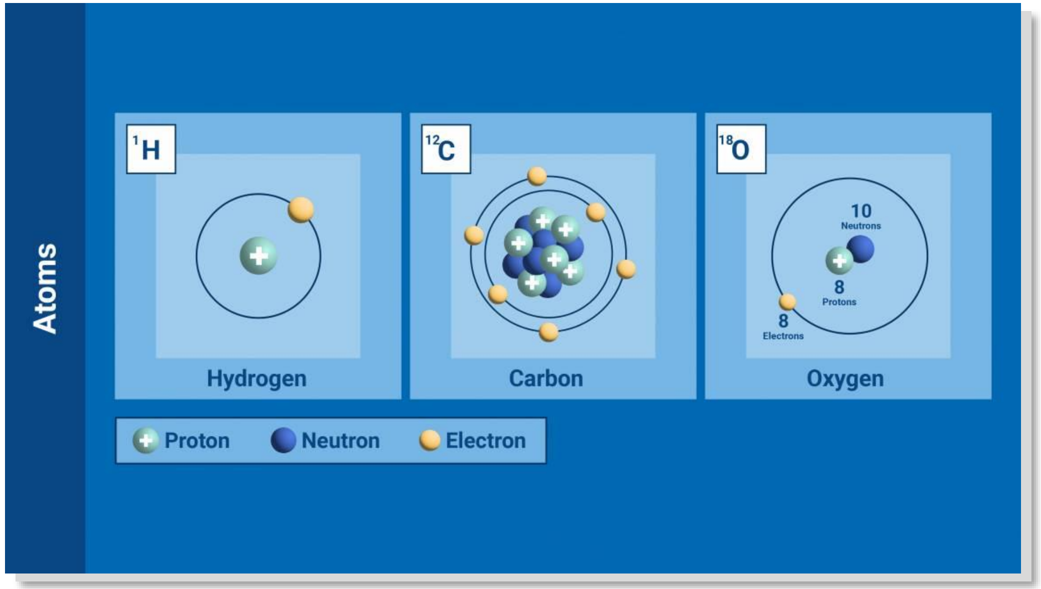
- Secure at least 3 additional supply agreements for isotopes critical for new technologies and healthcare.
- Generate sufficient revenues for the company to have annual positive operating cash flow.
- Enter additional supply contracts for new isotopes in the 2026-2028 timeframe.
- Spin out Quantum Leap Energy as a standalone company

Operational Target Milestones

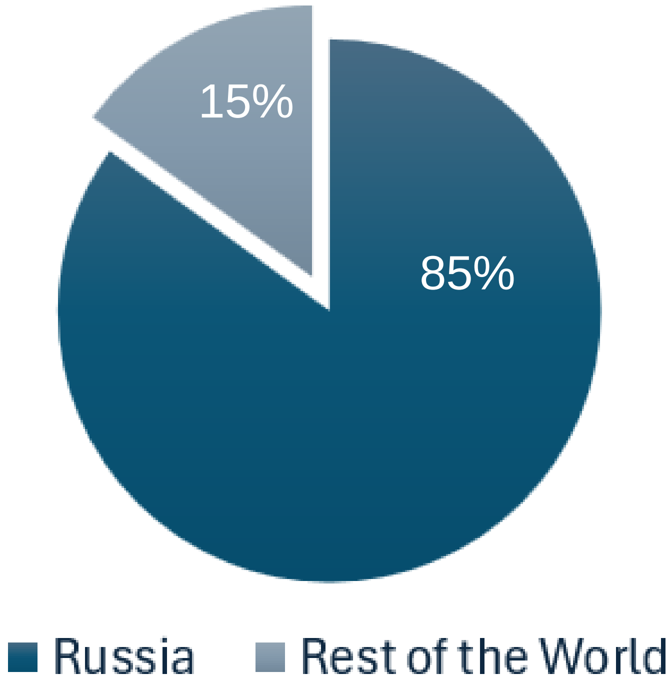
- Start commercial production of isotopes at our enrichment facilities in South Africa. –**1Q 2025**
- Start constructing a first isotope enrichment facility outside South Africa – which will be in a location with 100% renewable electricity supply, advantageous energy costs and reliable supply. – **2025**
- Expand laser production capabilities in South Africa with new isotope production. – **2H 2025**
- sce R&D phase of uranium enrichment at Pelindaba in a JV with Necsa. – **2025**

What is an Isotope?

- **Isotopes are variations of atoms, the smallest units of matter that retain all the chemical properties of an element. Isotopes are forms of a chemical element with specific properties.**
- Atoms with the same number of protons but different numbers of neutrons are known as isotopes. Isotopes exhibit nearly identical chemical properties but differ in mass, leading to variations in their physical properties. There are stable isotopes, which do not emit radiation, and unstable isotopes, which do emit radiation.
- Isotopes can be separated based on weight, and their amounts and proportions can be measured.
- Given their unique properties, isotopes are highly valuable in various fields, including medical treatment and diagnostics. Additionally, they have broad applications in nuclear energy, semiconductors, oil and gas, basic research and national security segments.



Isotope Supply Chain



Isotope Market Producers[1]

Isotopes have one of the most **severely compromised supply chains of any material in the world** and are critical to many end markets including nuclear medicine, energy, food and water:

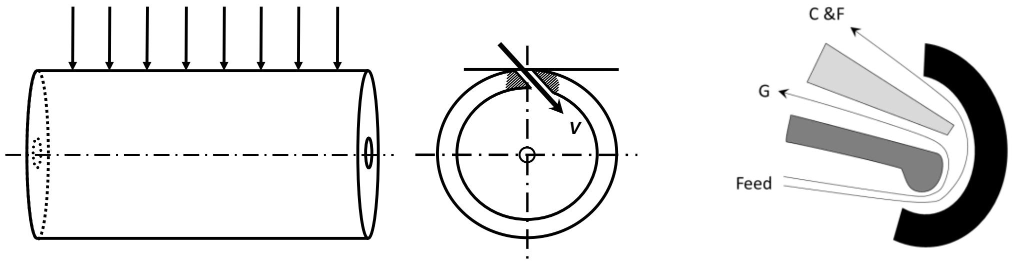
- Global isotope production is **dominated by Russia (85%)** with the remainder produced in the Netherlands (15%) by URENCO.
- The world remains susceptible to global disruption of industrial production, electricity generation, national defense, and the entire economy at large. The existence of many industries and defense capabilities faces existential risk without a secure isotope supply.

Our Technologies

1

Aerodynamic Separation Process (ASP)

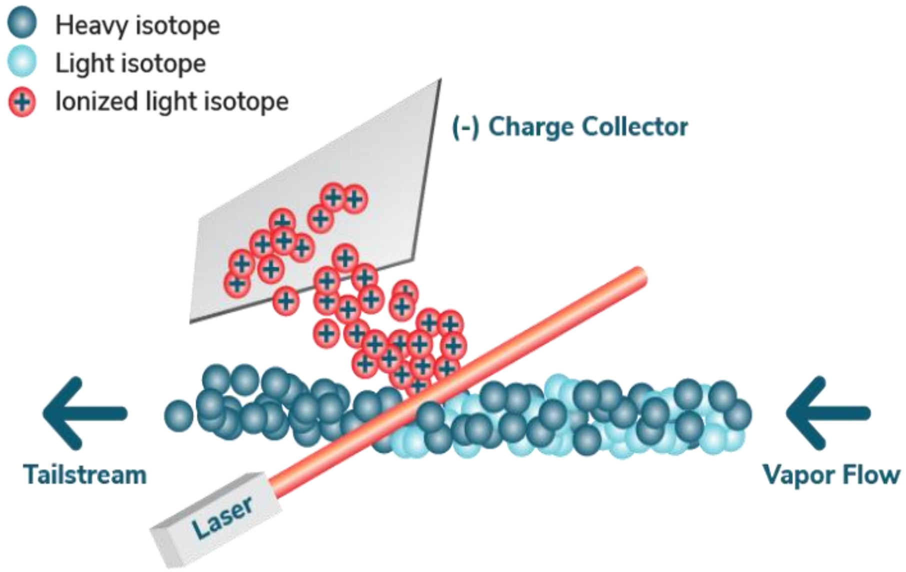
The Aerodynamic Separation Process utilizes gaseous diffusion via a stationary wall centrifuge paired with proprietary flow directors to separate isotopes of varying levels of atomic mass.



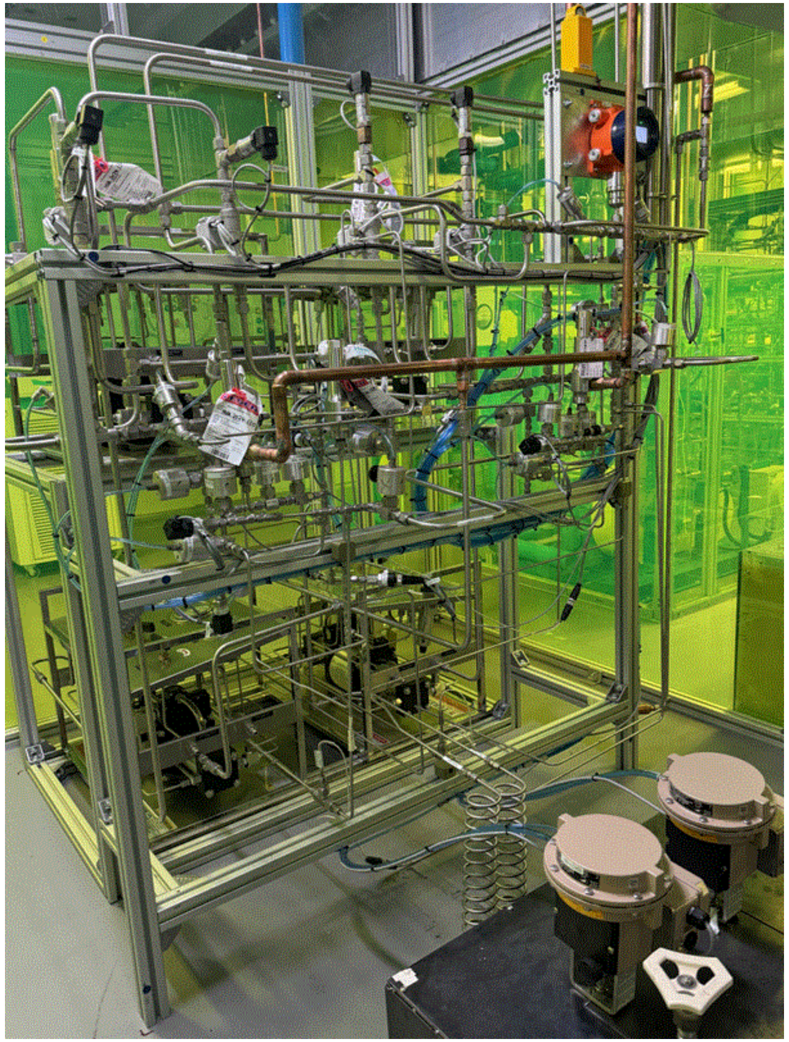
2

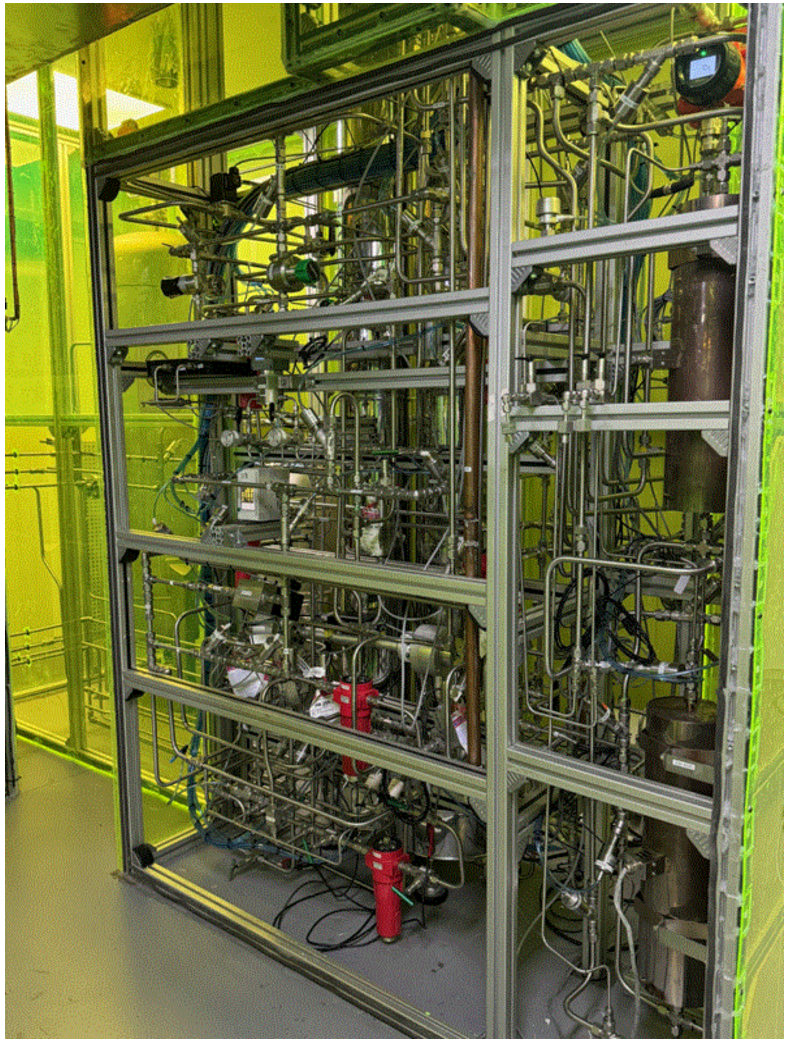
Quantum Enrichment (QE)

Quantum Enrichment technology employs precisely tuned lasers and quantum mechanical principles to efficiently separate isotopes based on their unique transition energies, achieving high selectivity for most elements.



ASP Technology: Illustrative Separation Segment and Element Recovery





ASP Isotopes: Technology Highlights

Cost-Effective

Isotope enrichment facilities using our technology can be constructed at a fraction of capital cost and time vs. traditional isotope separation facilities.

Modular, Scalable Design

The plants can be small in footprint and modular in design, allowing for capacity expansion amidst growing demand.

Environmentally Friendly

Our enrichment plants are designed to harvest and enrich a natural mix of isotopes, producing zero waste (not radioactive or any other waste in any form).

The Opportunity in Nuclear Medicine

The Opportunity in Nuclear Medicine

- The global medical isotope market generated $5.1 billion in 2022 and is anticipated to generate $11.4 billion by 2032.[2]
- Benefitting from increased regulatory approvals and R&D spend in the radiopharmaceuticals sector.
- Pipeline advancements have created multi-billion-dollar opportunities.

- Currently, there are **severe shortages of all medical isotopes**.

Nuclear Medicine: Isotopes of Interest

ASP isotopes

Stable Isotopes	Short half-life Radioisotopes (PET Labs)
6 12.011 C Carbon	^{14}C
42 95.950 Mo Molybdenum	^{99}Tc
30 65.380 Zn Zinc	^{68}Ga, ^{67}Cu
28 58.693 Ni Nickel	^{64}Cu
70 173.04 Yb Ytterbium	^{177}Lu

End Market

- **Carbon-Dating & Pharmacokinetic Tracing**
- **SPECT Scan Imaging**
- **PET Scan Imaging**
- **Oncology Treatment**
  - Non-Hodgkin lymphoma, Prostate Cancer, NETs
  - Neuroendocrine Tumors NETs

Isotope End Markets: Ytterbium-176 (^{176}Yb)

Radiopharmaceutical Theranostics

Global Market Size

$1.8bn

The radiopharmaceutical theranostics market is expected to be worth $3.43bn by 2028, growing at a CAGR of 11.3%, with the ^{177}Lutetium segment expecting to remain the dominant product.

^{176}Yb

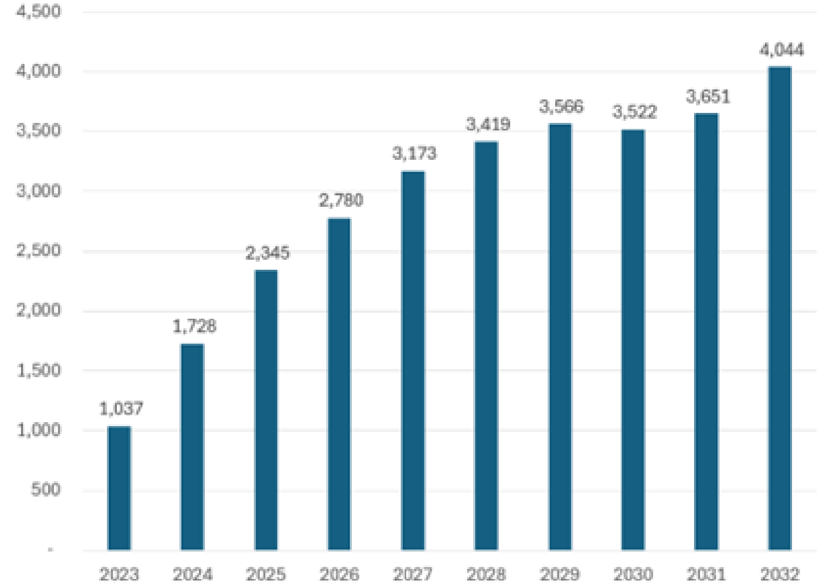
Ytterbium-176

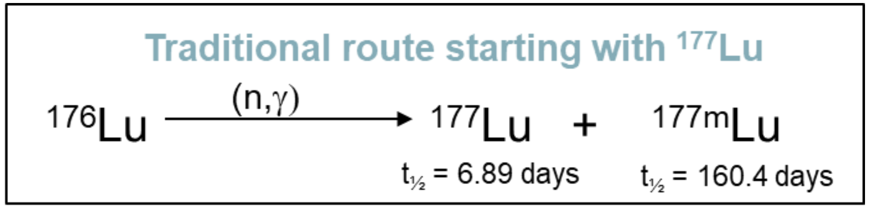
^{176}Yb Global Market Size

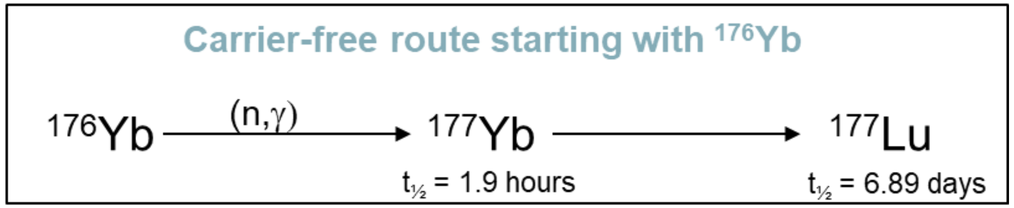
$100m

Our ^{176}Yb facility completed construction and commissioning in 4Q 2024 with first commercial production expected to commence in Q1 2025. This is the Company's first Quantum Enrichment facility.

Consensus Forecasts (US$) for Pluvicto







The ^{177}Lu supply chain is fragile and experiencing bottlenecks:

- ^{176}Yb provides a superior route to obtaining ^{177}Lu. The traditional route, beginning with ^{176}Lu requires separating its products, ^{177}Lu and ^{177m}Lu, which is both difficult and carries a long half-life.
- Russia has historically been the world's primary producer of ^{176}Yb .
- Supply disruptions for the critical isotope provide an opportunity for ASPI to meet demand requirements and capture significant market share.

Isotope End Markets: Zinc-68 (^{68}Zn)

Positron emission tomography (PET)

Global Market Size[4]

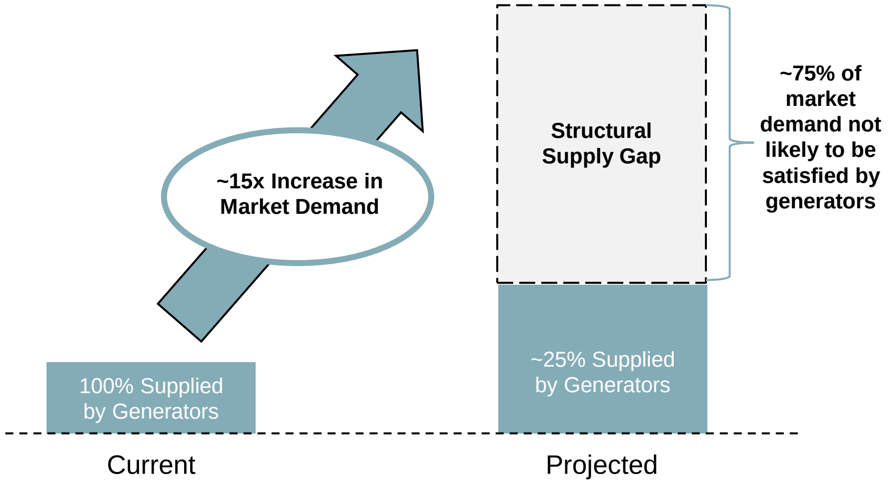
$1.15B

^{68}Ga

Gallium-68

^{68}Ga Global Market Size[5]

$127M



^{68}Ga is the Key Diagnostic for Most Lutetium and Actinium Based Drugs in Development

~15x Increase in Demand	• There are currently two FDA approved ^{68}Ga labelled drug products. • Additional near-term approvals and increase in use cases upon approval of PSMA therapeutic Radiopharmaceuticals likely drives a 15x increase in demand.
^{68}Ga Generators Cannot Address Market Needs	• The primary commercial source for Gallium is ^{68}Ga generators, which are unlikely to produce sufficient isotopes to meet anticipated demand. • ^{68}Ga production using liquid targets are highly inefficient.
^{68}Ga Generator Install-Base Expansion is Cost Prohibitive	• Assuming enough generators can be made to meet projected ^{68}Ga demand; the cost to secure those generators will likely be prohibitive.

Isotope End Markets: Molybdenum-100 (^{100}Mo)

Single-photon emission computed tomography (SPECT)

Global Market Size[3]

$4.61B

^{99}Tc

Technetium-99

^{99}Tc Global Market Size[3]

$4.17B

Current Isotope Conversion Process

^{99}Mo → **^{99}Tc**

Half-Life: **66** Hours

Half-Life: **6** Hours

ASP Isotope Conversion Process

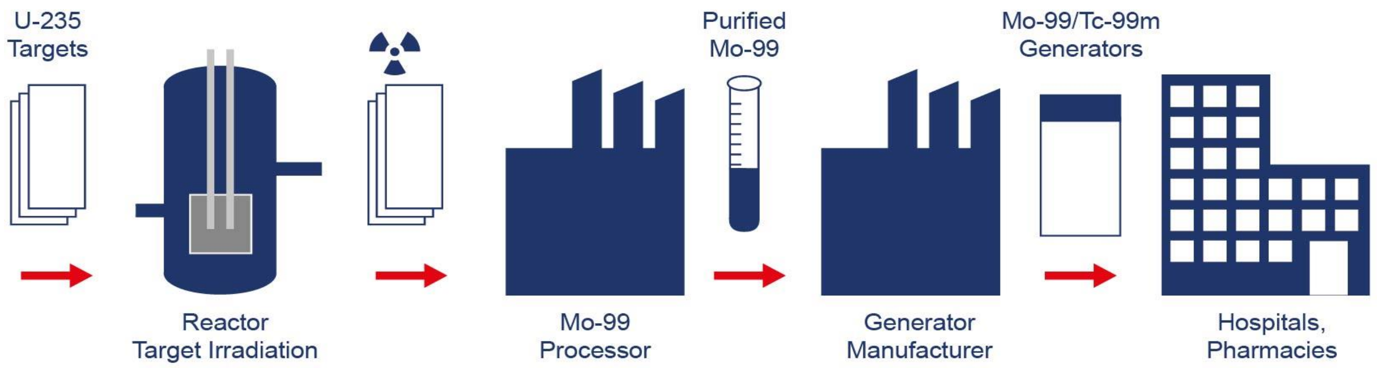
^{100}Mo → **^{99}Tc**

STABLE

Half-Life: **6** Hours

- SPECT scans are used to examine the function of internal organs.
- This imaging technique helps detect certain types of cancer. It creates a 3-dimensional image that can provide information about blood flow and chemical reactions.
- ^{100}Mo would result in a more convenient supply chain with lower shipping costs. Anticipated market entry date: 2026

Current ^{99}Mo Supply Chain



Isotope End Markets: Carbon-14 (^{14}C)

Medical tracing

Global Market Size **$10m p/a**

- Medical tracing 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.
- ^{14}C is used as a radiolabeling compound due to its relatively harmless emission of alpha particles, and long-lasting half-life, which allows researchers to track drug molecules throughout the body.

ASPI's Carbon-14 enrichment facility

Historically, Russia has been the sole supplier of Carbon-14. Availability of the isotope since the start of 2022 has been intermittent and unreliable. Now customers are seeking alternative suppliers to meet their demand.

We have the capacity to meet total global demand.

ASPI has entered into **multi-year** supply agreement with **minimum annual revenues of $2.5M** per year.

ASPI expects to start commercial production of Carbon-14 during 1H 2025.

Medical Isotopes – Timelines

Isotopes	End-Market	R&D Stage	R&D Evaluation	Under Construction	Anticipated Market Entry	Technology
Carbon-14	Pharma & Agrochem	✔	✔	✔	1H 2025	ASP
Molybdenum-100	Nuclear Medicine	✔	✔	✔	2026	ASP
Molybdenum-98		✔	✔	✔	2026	ASP
Ytterbium-176		✔	✔	✔	2025	QE
Zinc-67/68		✔	✔	--	2026	ASP
Nickel-64		✔	✔	--	2026	QE
Xenon-129		✔	✔	--	2026	ASP
Gadolinium-160		✔	--	--	2026	QE

The Opportunity in Semiconductors

The Opportunity in Semiconductors: Materials

ASPI can establish itself as an indispensable part of the semiconductor supply chain.

- Using our proprietary technology and increasing capacity our goal is to become the world's leading supplier of enriched Silicon-28.
- We aim to enrich Silicon-28 content from 92.2% to the required >99.995% purity product, removing Silicon-29 and 30 isotopes.
- Preliminary research suggests that enriched Silicon-28 can deliver superior conductivity and transformational performance - unlocking greater computing potential.

Demand for semiconductors and their materials is growing, with the market on track to surpass **US$1tn by 2030**. [6]

- Data Centres
- AI
- Consumer Electronics
- EVs
- Quantum Computing

Our Silicon-28 enrichment plant in South Africa

ASPI is the world's only commercial supplier of Silicon-28 and is partnering with the global semiconductor industry to supply large quantities of Silicon-28 through 2030 and beyond to allow the industry to unlock the significant performance gains that arise from switching to Silicon-28 Nanowires.

Silicon-28: Technological Breakthrough

- Electronics are relatively affordable because Silicon is cheap and abundant. But, although naturally occurring Silicon is a good conductor of electricity, it is not a good conductor of heat when it is reduced to very small sizes – and when it comes to fast computing, that presents a big problem.
- Silicon-28, an isotopically pure form of silicon, presents a solution. Its thermal conductivity is about 60% higher.
- Our technology has demonstrated the potential to produce enriched Silicon-28 at a commercial scale. We expect to supply semiconductor companies with highly enriched Silicon-28 from 2024.

For many decades, researchers theorized that chips made of pure Silicon-28 would overcome Silicon's thermal conductivity limit, and therefore improve the processing speeds of smaller, denser microelectronics. But purifying silicon down to a single isotope requires intense levels of energy which few facilities can supply – and even fewer specialize in manufacturing market-ready isotopes.

- Lawrence Berkeley National Laboratory [7]

Isotopes	End-Market	R&D Stage	R&D Evaluation	Under Construction	Anticipated Market Entry	Technology
Silicon-28	Semiconductors	✔	✔	✔	1Q 2025	ASP
Germanium-79/72/74		✔	✔	✔	2025	ASP
Ytterbium-171	Quantum Computing	✔	✔	✔	2026	QE
Barium-137		✔	--	--	2026	QE
Helium-3	Semiconductors	✔	--	--	2026/27	Undisclosed

Plan for Growth: Scaling into New Isotopes

Iceland is a desirable location for ASPI's expansion for several reasons. Here we expect to produce multiple enriched Isotopes supported by long-term contracts with significant partners. Planned isotopes include Silicon-28, Germanium-72 & 74, Xenon-129, Deuterium, Zinc-68, Molybdenum-100 & 98 and Chlorine-37.

We expect customers to contribute considerable amounts of capital to the construction of additional manufacturing capacity for new isotopes. Benefits include…

Cost of Energy

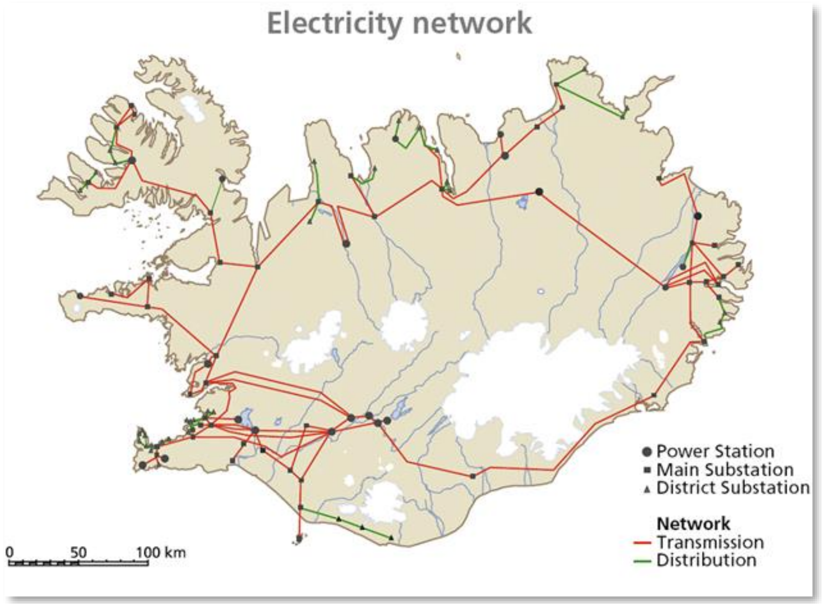
- A local green energy provider has provided a quote for 10+ year energy supply at <5₵/Kw/h – approximately one fifth of the cost in mainland Europe, a third of the cost in the US, and only 3% of current energy costs in South Africa.

Regulation

- Policy in Iceland aims to benefit the high-tech green industry, supporting the country's long-held ESG-based ethos. Regulatory applications are in progress and ASPI is well placed to receive support from relevant government ministries and non-proliferation regulators.

Location

- Plant location will be conveniently located near an international airport and shipping port. It is also a source of highly skilled workforce.



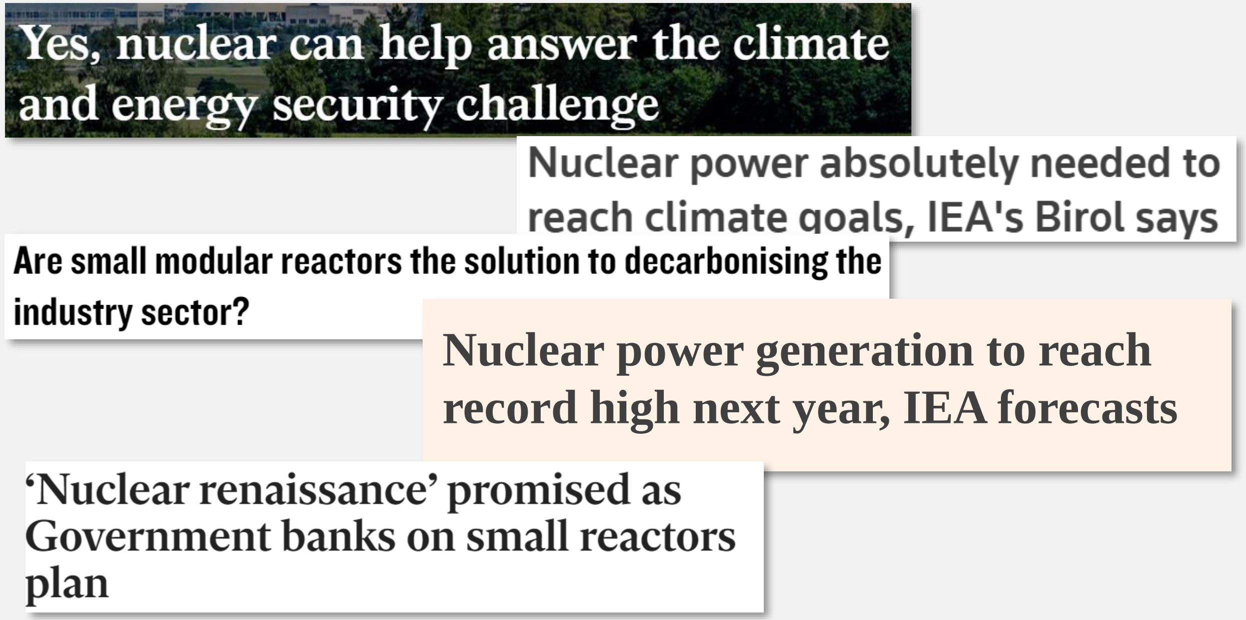
The Opportunity in Nuclear Energy

QUANTUM LEAP ENERGY

The Problem is Well-Known...Solving it is not as Straightforward

Global electricity production needs to double by 2050, and Net Zero targets have been set across the world.

- During COP28, 24 countries backed a Ministerial Declaration calling for the tripling of global nuclear energy capacity by 2050.
- UK aims to have up to 24 GW of nuclear capacity by mid-century, up from 6 GW today, which could meet around a quarter of the country's forecast electricity demand.
- China plans to build more reactors in the next 15 years than have been built globally in the last 35. It has 38 operable reactors; 19 are under construction, and the country plans to produce 70 GW of power by 2025.[8]
- India plans to build 10 new large reactors, and Japan is targeting 20-22% of electricity generation from nuclear by 2030.[9]


Yes, nuclear can help answer the climate and energy security challenge

Nuclear power absolutely needed to reach climate goals, IEA's Birol says

Are small modular reactors the solution to decarbonising the industry sector?

Nuclear power generation to reach record high next year, IEA forecasts

'Nuclear renaissance' promised as Government banks on small reactors plan

To reach Net Zero emissions by 2050, the world must increase global electricity generation by 250% and double Nuclear energy output.[10]

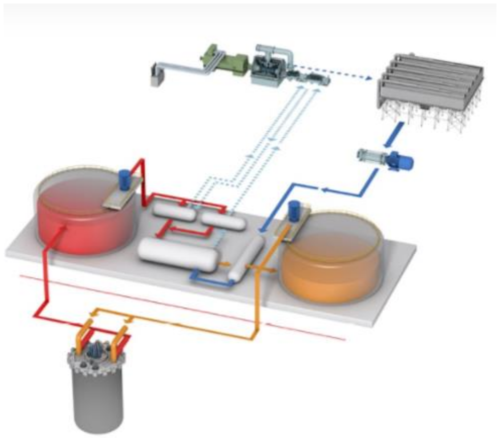
SMR (Small Modular Reactors): Next Wave in Nuclear Energy

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

The US DOE has already committed billions of dollars to Advanced Reactor Design Program (ARDP) to facilitate and accelerate development of advanced reactors.

- 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.
- Limited on-site preparation to substantially reduce lengthy construction times.
- 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).

TerraPower's Natrium



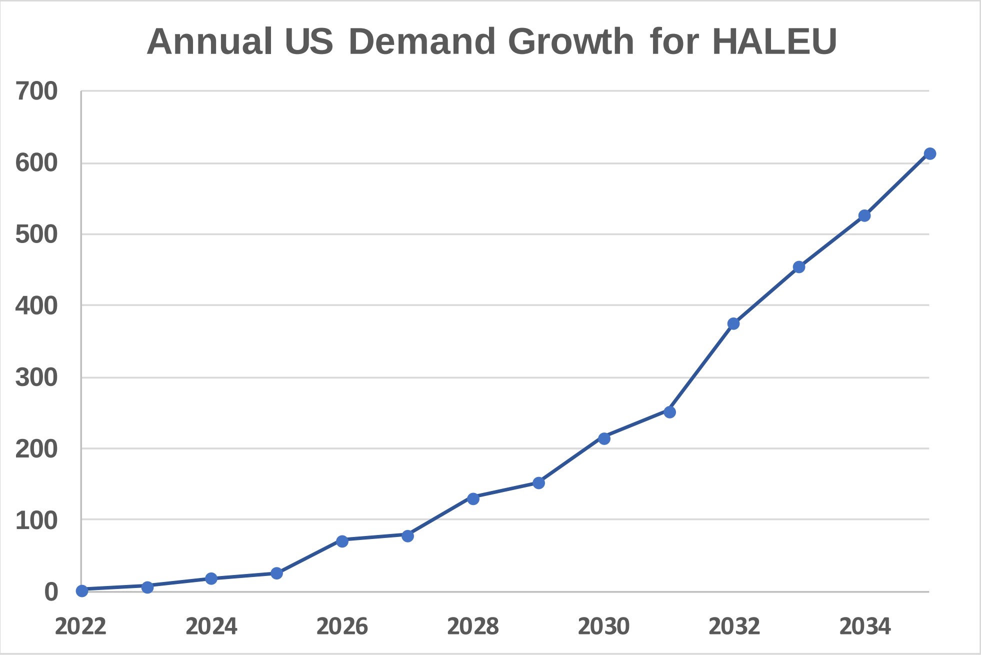
X-Energy's Xe-100

Rolls-Royce's SMR

ASP isotopes

HALEU Supply: A Growing Concern for SMRs

- Current commercial light water reactors use low-enriched uranium (LEU) fuel which has less than 5% ^{235}U content.
- Many SMRs and advanced reactors will require **High Assay Low Enriched Uranium (HALEU)** with ^{235}U enrichment up to 19.75%.
- Currently, there is no commercial supplier of HALEU in the Western World. Without fuel these SMR's are unlikely to become a reality.
- Recently, TerraPower delayed the start-up of its SMR from 2028 by at least 2 years due to the lack of availability of HALEU.
- The U.S. government has made a multi-billion-dollar commitment to help commercialize HALEU-fuelled advanced reactors.
- Many European and Asian countries are also in need of HALEU for SMRs.



The NEI estimates (above) that by 2035 US domestic demand for HALEU could reach >600 Metric Tons per annum.

We believe that our proprietary Single Stage Quantum Enrichment Technology provides an ideal solution…

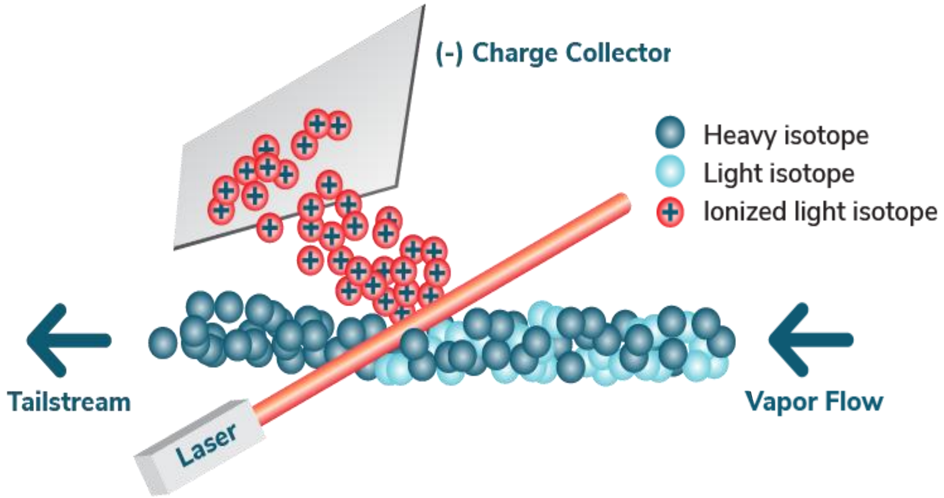
Our Technology: What is Quantum Enrichment (QE)?

- Isotopes of every element have unique spectroscopic "signatures" defined by the electromagnetic radiation or "light" absorbed by their atoms from electron transitions.
- QE separates two isotopes by taking advantage of the slight differences in the transition energy between two isotopes. This method is described as a "quantum mechanics" method.

In principle, Quantum Enrichment can separate isotopes of most elements, achieving desired enrichment in a single step.

A laser is a device that can produce large numbers of photons, all having almost precisely the same frequency or energy.

By precisely tuning lasers to a specific isotope's spectrum (color) signature, those atoms can be selectively photoionized and then electrically separated based on their electric charge.



Comparing and Contrasting Enrichment Methods

	Gaseous Diffusion	Centrifugation	Atomic Vapor laser Isotope Seperation (AVLIS)	Separation of Isotopes by Laser Excitation	Quantum Leap Energy
Cost	High Capital Cost	Capital 1/10 of Diffusion	Low Capital, Small Size	Low Capital, Small Size	**Low Capital, Small Size**
Speed	High Pressure	High Speed	U Metal 3000K	Adiabatic expansion nozzles (10-20K)	**U Metal 3000K**
Technology Notes	High Technology	Rotor Design & Material	Selective Photoionization	Laser Excitation Transamission by Skimmer	**Enhanced Resonant Multiphoton Ionization**
Selectivity	Selectivity α ≥ 1.003	Selectivity α ≥ 1.15	Selectivity α ≥ 10-50[11]	Selectivity α ≥ 2-20[12]	**Selectivity α ≥ 50**
SWU	2500 kWh/SWU	50 kWh/SWU	40 kWh/SWU	Estimate < 50 kWh/SWU	**40 kWh/SWU**
Stages Required	500 Stages to reactor grade	50 Stages	1-2 Stages	1-2 Stages	**Single Stage**

Why Quantum Enrichment?

- Atomic spectroscopy – multiple selective lasers increase photoionization yield well over 70%.
- Address quantum-forbidden transitions.
- High-power, high-spec, and high repetition rate pump lasers.
- Superior laser beam profiling, shaping, and combination.
- Atomic beam collimation for reduced Doppler broadening.
- Inline Optogalvanic and Mass Spectrometry process control.
- Cascading for >99% enriched product.

Quantum Enrichment: Real World Experience

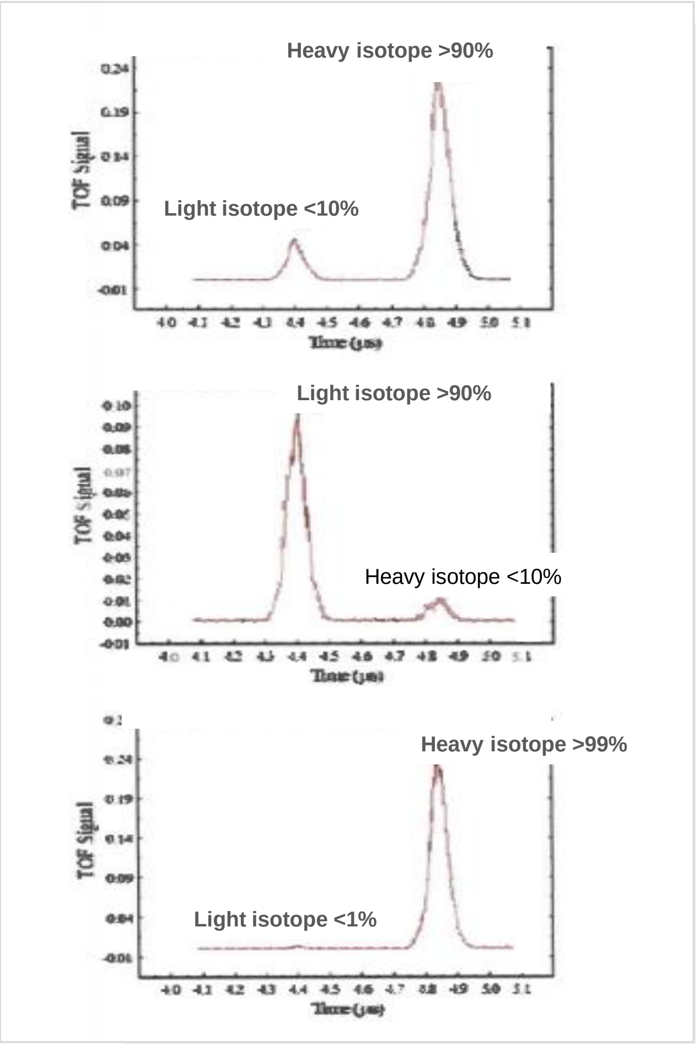
Our team have used lasers to enrich many different metals

- Uranium
- Lithium (the only isotopes where results have been published)
- Ytterbium
- Zirconium
- Zinc

The separation process shown on the right is for Lithium 6 and 7

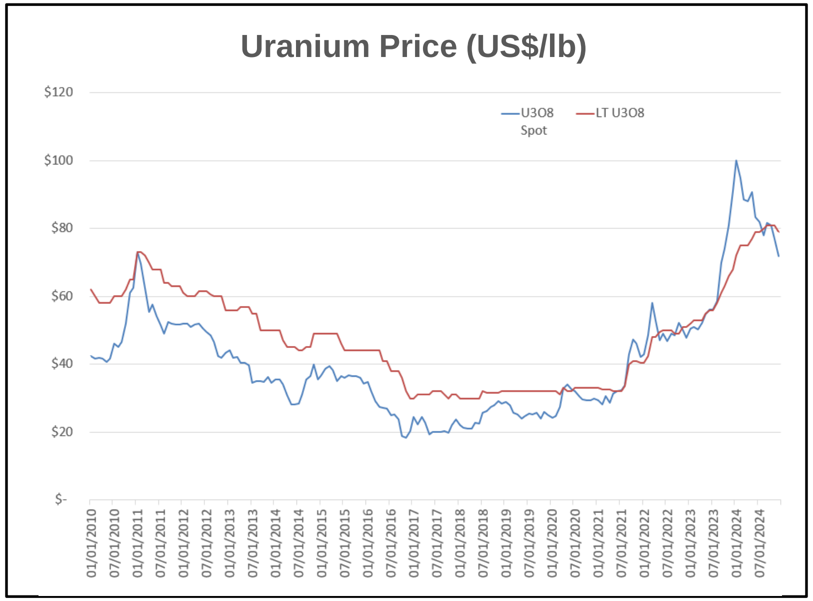
- A metal with an atomic mass <100
- Mix of isotopes: ~5% is the light isotope (Lithium 6) and ~95% is the heavy isotope (Lithium 7)
- After a single enrichment stage –
  - In the product stream the light isotope (Lithium 6) is >90% and the heavy isotope (Lithium 7) is <10%
  - **Light side enrichment factor (β) of 112**

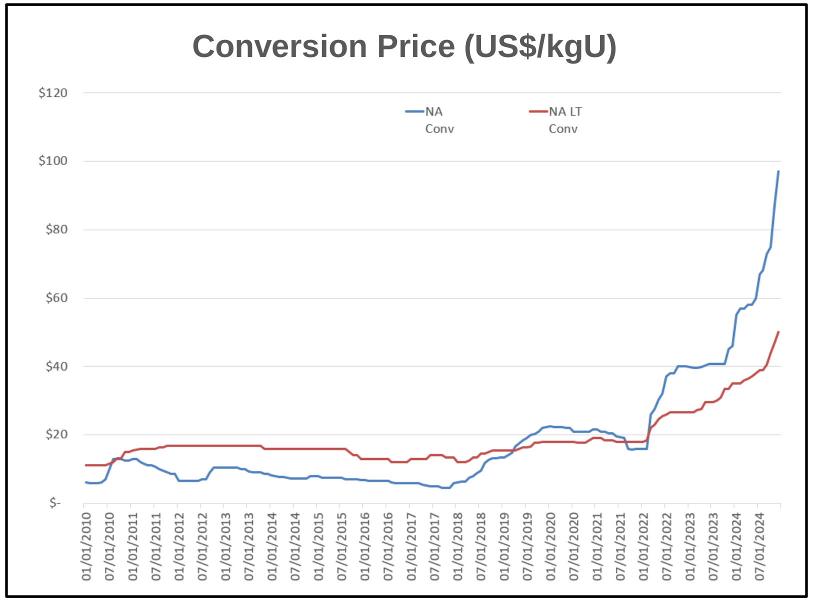
Laser Enrichment of Lithium 6

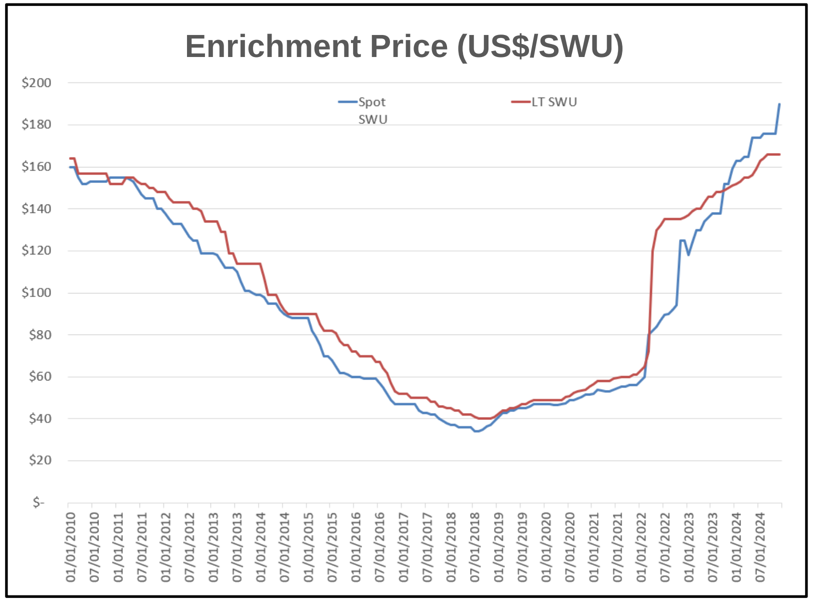


Nuclear Fuel: Supply Chain and Prices

- Uranium supply has been in a state of sustained deficit since 2018, which is widening due to years of underinvestment in uranium assets, resulting in production issues from the world's largest suppliers.
- Meanwhile, demand for front-end nuclear fuel (U_3O_8, UF_6, EUP) continues to grow given ambitious global nuclear roll out strategies.
- Global geopolitics is adding pressure to an already bifurcated market, particularly in conversion and enrichment where Russia is the dominant player.
- China is the demand outlier and could procure over 7x global annual supply for themselves, and their domestic conversion and enrichment production will be used solely for their own reactor fleet.
- It takes several years, often over 12 years, for new permitted uranium supply to come on stream.



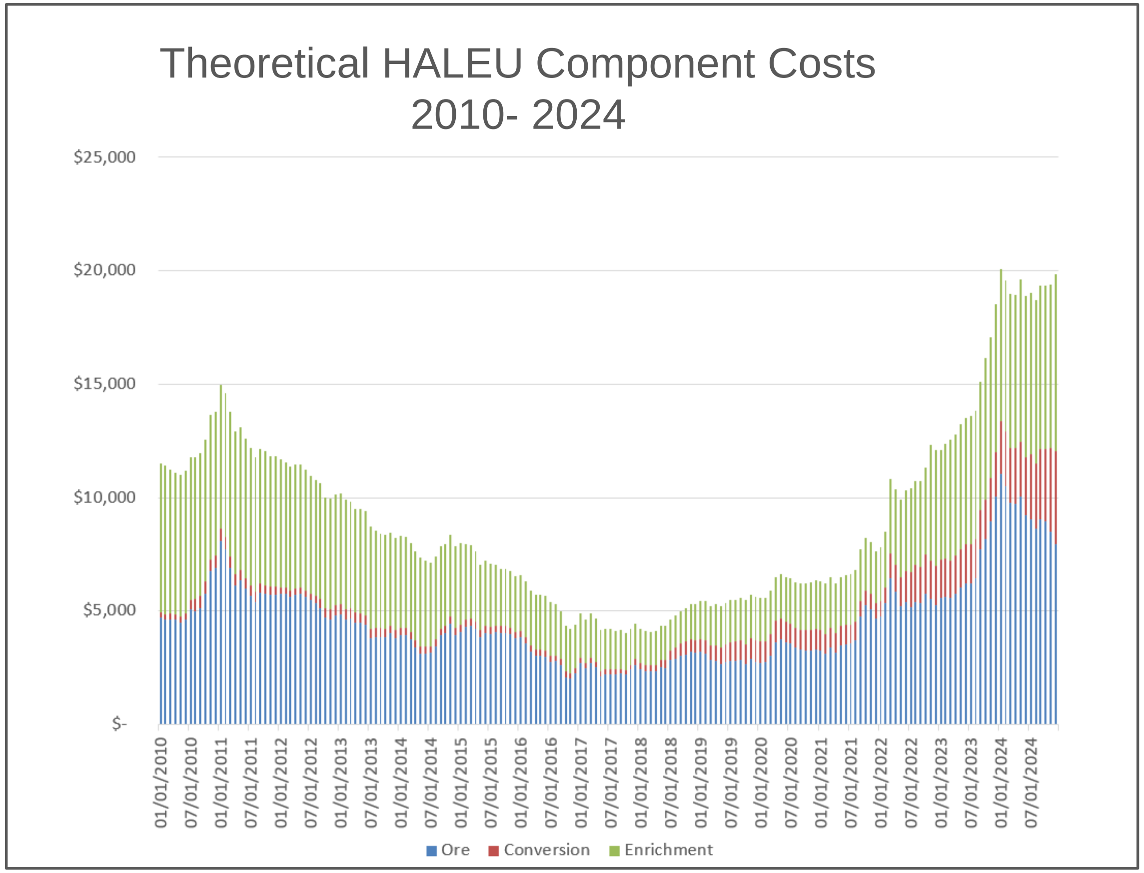


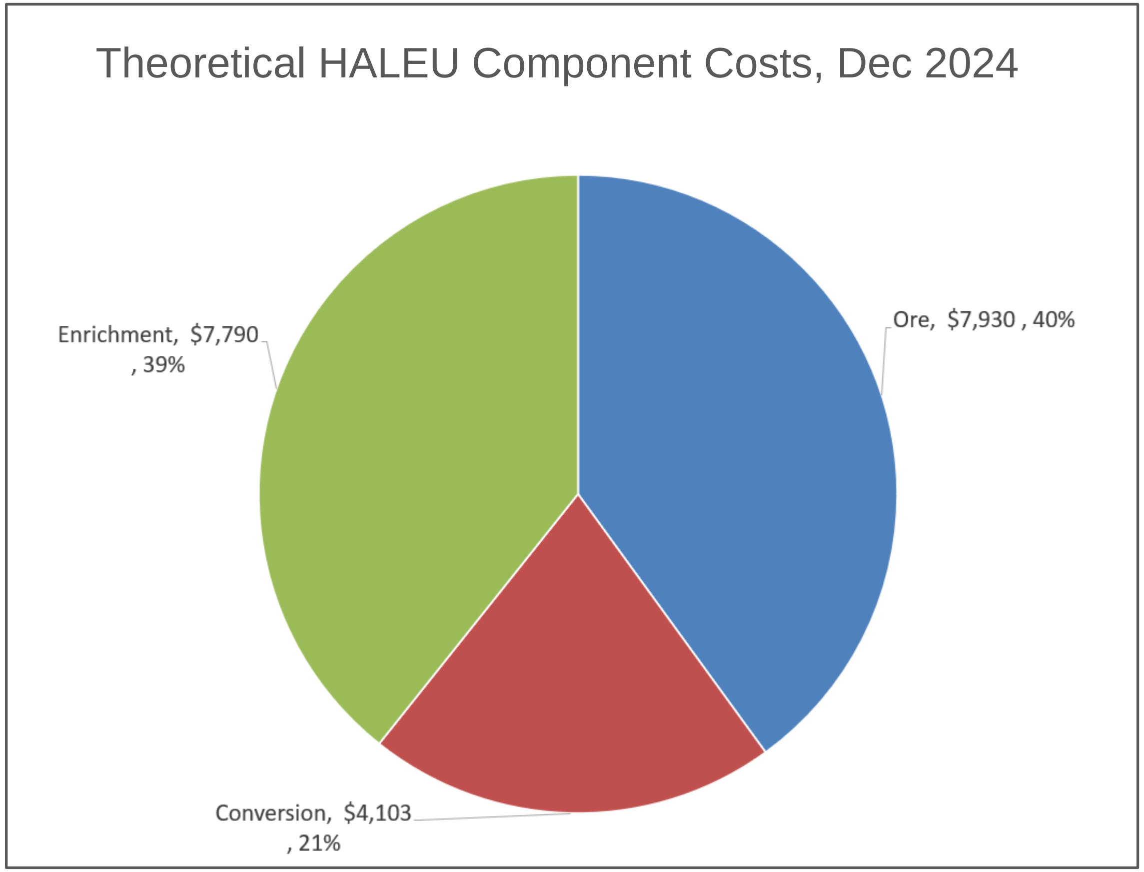


Source: UxC, LLC

Implications for HALEU

- If available (currently there is no Western supplier of HALEU), HALEU would likely cost >$18,000 per Kg.
- Many SMR companies based their business plans assuming HALEU <$10,000 per Kg. We believe Quantum Enrichment may allow for HALEU production at significantly lower prices versus current indicative prices.





Source: UxC, LLC

Potential to Close the Loop on Nuclear Waste

Depleted tails from other uranium enrichers produce nuclear waste. The management of this waste is becoming a problem.

We believe that our technology can process this waste into HALEU - **Potentially providing a solution to this growing environmental problem.**

If we can secure access to this nuclear waste at an attractive cost, we should be able to **produce HALEU at highly competitive prices**.

Depleted UF6 Tails stored in Ohio, USA

Isotopes	End-Market	R&D Stage	R&D Evaluation	Under Construction	Anticipated Market Entry	Technology
Chlorine-37	Nuclear Energy	✔	--	--	TBD	ASP
Lithium-7		✔	✔	--	2027	QE
Lithium-6		✔	✔	--	2027	QE
Uranium-235		✔	--	--	TBD	QE and ASP

Investment Overview

Leverage the following…

Proven Proprietary Technology

ASPI's advanced technologies leverage 20 years of R&D history to enrich isotopes in varying levels of atomic mass, allowing it to meet the growing demand in the Nuclear Medicine, Semiconductors, and Nuclear Energy industries.

Multiple Secular & Geopolitical Tailwinds

Favorable long-term market trends are expected to drive long-term secular industry growth. Recent geopolitical events have created high urgency for companies and countries to search for reliable sources of isotopes.

Consistent Operational Performance

Since incorporation, we have completed the construction of our first 3 manufacturing facilities, and we continue to expand our operating footprint in South Africa. Our South African facilities are expected to enter commercial production during 2025 and should drive free cash flow.

To capitalize on three multi-billion-dollar opportunities…

Nuclear Medicine

Semiconductors

Nuclear Energy

Appendix

Current Group Structure

- Most customers contract through ASPI Guernsey
- Intellectual property largely owned by ASPI (UK)

- We plan to spin-out Quantum Leap Energy (QLE) as a separate public company and list the shares of QLE on a U.S. national exchange and distribute a portion of QLE's common equity to ASPI's stockholders as of a to-be-determined future record date.

ASP Isotopes Inc.
Delaware (US)
NASDAQ: ASPI

- 51% — **PET Labs Pharmaceuticals (Pty) Ltd**, South Africa
- 100% — **ASP Isotopes Guernsey Limited**, Guernsey
  - 100% — **PET Labs Global Nuclear Medicine SEZC**, Cayman Islands
  - 100% — **ASP Isotopes South Africa (Pty) Ltd**, South Africa
    - 100% — **ASPI South Africa Asset Finance**, South Africa
    - 80% — **Enlightened Isotopes (Pty) Ltd**, South Africa
  - 100% — **ASP Isotopes UK Ltd**, United Kingdom
  - 100% — **ASP Isotopes ehf**, Iceland
- 100% — **Quantum Leap Energy LLC**, Delaware (US)
  - 100% — **Quantum Leap Energy Limited**, United Kingdom
    - 100% — **Quantum Leap Energy (Pty) Ltd**, South Africa

Company History

September 2021

- ASPI incorporated in Delaware
- Raised $4 million in pre-seed funding
- Received appropriate permits from the non-proliferation council of South Africa for ASPI to acquire Klydon's Plant

October 2021

- ASPI wins competitive auction for Klydon Large-scale Plant assets
- Raises an additional $6 million and commenced procurement of components

July 2022

Acquisition of the Small-Scale Plant enrichment facility from Klydon

November 2022

- Initial public offering (NASDAQ) raising $5 million
- Signed supply agreement with BRICEM for enriched Molybdenum^{100}

March 2023

ASPI announces the commissioning of its Small-Scale Plant

May 2023

ASPI enters into a multi-year supply agreement for Carbon 14 with minimum annual revenues of $2.5m

4Q 2023

- Formation of Quantum Leap Energy focused on nuclear fuels
- Entered into 2 MOUs with US Small Modular Reactor companies for production of HALEU

November 2023

- ASPI acquires 51% of the outstanding capital stock of PET Labs (SA)
- ASPI commits to add additional cyclotron capacity into South Africa

February 2024

ASPI announces planned spin-out of QLE and raises >$20m in a convertible note financing

October 2024

- ASPI demonstrates enrichment of Ytterbium-176 during commissioning phase of the first Quantum Enrichment plant
- ASPI enters into formal term sheet with TerraPower, LLC for the construction of a HALEU production facility

November 2024

- ASPI completes construction and begins commissioning of Silicon-28 enrichment facility
- MOU with the South African Nuclear Energy Corporation (Necsa) to collaborate on the research, development and construction of an Advanced Nuclear Fuel Production Facility

One of the Most Experienced Laser Groups in the World

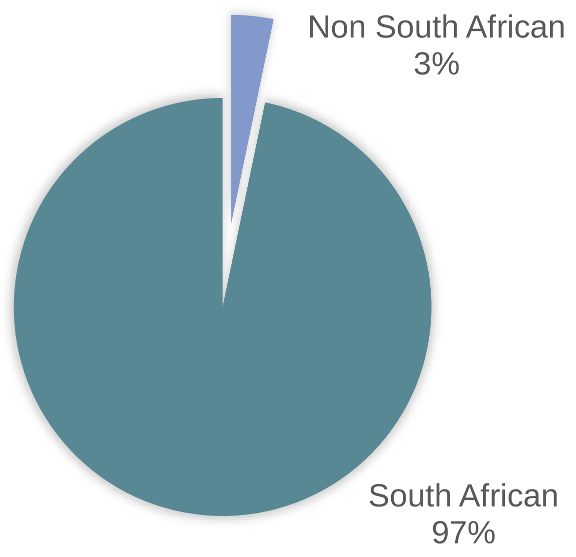
Our team has designed and constructed lasers for the following customers…

ASPI: Employees Demographics

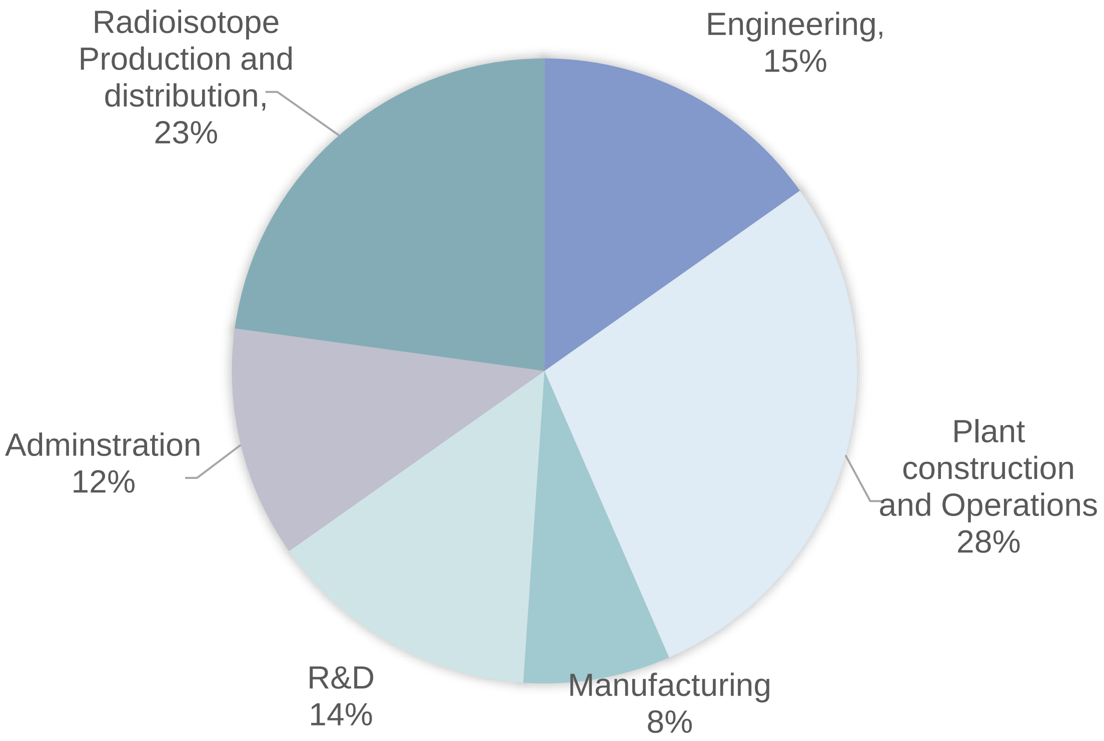
We now have over 130 employees...

19% of employees have PhDs
41% of employees have advanced degrees or higher

Employees By Nationality



Employees By Role



ASP Isotopes: Leadership Team

PAUL MANN
Chairman, and CEO

- Co-founded ASP Isotopes in September 2021
- 20+ years of experience on Wall Street investing in healthcare and chemicals companies at Soros Fund Management, Highbridge Capital and Morgan Stanley.
- MA and MEng (Chemical Engineering) from Cambridge University, Research Scientist at Procter and Gamble. CFA charter holder.

HENDRIK STRYDOM, PhD
Director, Chief Technology Officer

- Co-developer of "Aerodynamic Separation Process" (ASP) and CEO of Klydon, the predecessor company since 1993.
- Extensive research on the laser separation of heavy isotopes (AVLIS, MLIS, SILEX).
- Dr. Strydom has PhD (Physics) (2000) from the University of Natal (Durban).

GERDUS KEMP, MD, PhD
Medical Director, CEO PET Labs

- CEO Pet-Labs, a South African radiopharmaceutical operations company dedicated to nuclear medicine and the science of radiopharmaceutical production
- Medical Director Klydon, Medical Director Molybdos
- Ph.D. (Inorganic Chemistry) from the University of Johannesburg. Current Lecturer in Radiography, University of Pretoria

ASP Isotopes: Senior Management

Xandra Van Heerden, PhD
Head of R&D

- Head of Research & Development at ASP. Previously R&D Manager at a large biomedical engineering company
- Senior lecturer at the University of Pretoria for five years, with a focus on chemical mass transfer processes and separation technologies (Distillation)
- PhD (Chemical Engineering) from the University of Pretoria

Heino Van Wyk
Head of Engineering

- Process engineer with design experience in Petrochemical, Chemical, Water and Isotope Separation Plants
- Process Engineer and Engineering Manager at Klydon. Headed up design process on a MoF6 & Carbon-14 enrichment plant
- BEng (Chemical Engineering) from the University of Pretoria

Heather Kiessling
Chief Financial Officer

- 30+ years experience with life science and high-tech companies
- Managing Director at Danforth Advisors LLC, a life science consulting firm
- Held finance leadership roles at Cytonome/ST, LLC and AutoImmune Inc.
- CPA and holds a BA from University of California, San Diego, and an MBA from University of Michigan Graduate School of Business.

Robert Ainscow
Chief Operating Officer

- Co-Founder, ASP Isotopes
- 20+ years experience on Wall Street in Capital Markets, Asset-Backed Finance, and Control at Investec Bank, Bear Sterns, and Morgan Stanley
- B.A. (Joint Hons) in Law and Modern Languages from Bristol University

ASP Isotopes: Scientific Advisors

SERGEY VASNETSOV
Consultant and Chemical Engineer

- Founder and Managing Director of ChemBridges, strategy consulting firm, since 2016.
- SVP of Strategy and M&A at LyondellBasell (NYSE: LYB) (2010-2016).
- Managing Director, Equity Research at Barclays Capital and Lehman Brothers (1996-2010).

ASP Isotopes: Non-Executive Directors

PROF MIKE GORLEY, PhD
Director

- Director of Fusion Technology at the U.K. Atomic Energy Authority. and a visiting Professor at the University of Bristol, U.K. Mike is a well-known expert in fusion technology and fusion materials.
- Previously served as a Chief Technologist and Strategic leader and program area manager for fusion technology at the UK Atomic Energy Authority.
- Ph.D. (DPhil) in Materials Science from Oxford University, U.K

TODD WIDER, MD
Director

- Executive Chairman and Chief Medical Officer, Emendo Biotherapeutics
- Active Staff (*~20 Years)* in reconstructive surgery at Mount Sinai Hospital in New York
- MD Columbia College, Residency in General Surgery and Plastic and Recon at Columbia Presbyterian, Postdoctoral fellowships at Memorial Sloan Kettering as Chief Microsurgery Fellow

DUNCAN MOORE, PhD
Director

- Partner at East West Capital Partners, specializing in investment opportunities within the Healthcare Industry across the APAC region.
- Global Head of Healthcare Equity Research at Morgan Stanley from 1991 to 2008,
- M.Phil & PhD in Biochemistry from Cambridge University

ROB RYAN
Director

- 30+ years private investor with experience in investment banking, private equity and international financial law.
- Was a partner and MD of Balbec Capital LP.
- Worked at international investment banks after starting his career as a solicitor at a leading U.K. multinational law firm.
- LL.B. degree from the University of Leicester.

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