

The background features a complex molecular structure graphic. It consists of interconnected hexagonal rings and smaller nodes, rendered in shades of light blue, purple, and pink. The structure is more dense and detailed on the right side of the slide, fading out towards the left.

ASP isotopes

# Corporate Overview

March 2024

# Forward Looking Statements

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## Forward Looking Statements

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: our reliance on the efforts of third parties; our ability to complete the construction and commissioning of our proposed enrichment plants or to commercialize the isotopes produced 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.

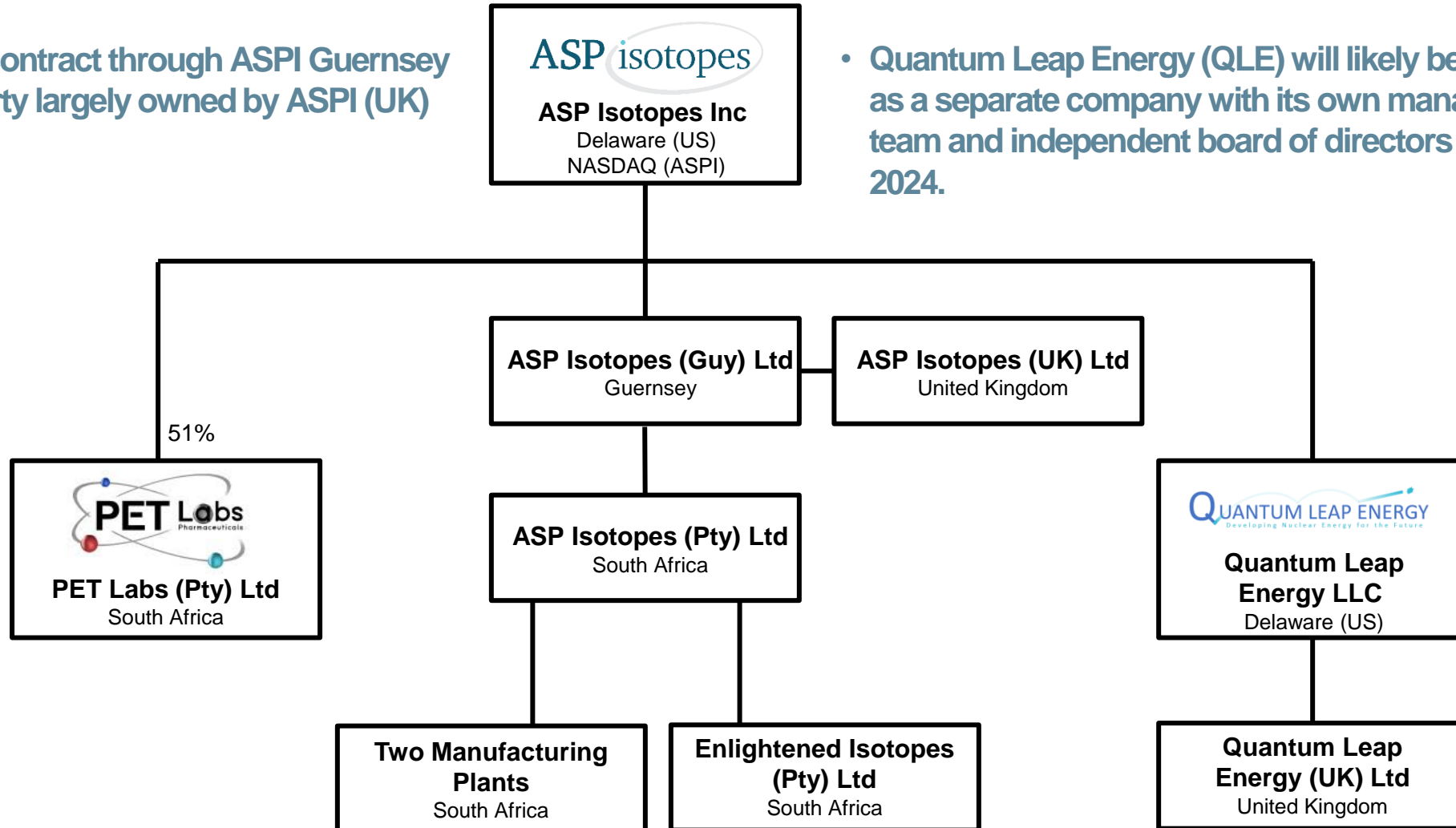
## Market and Industry Data

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.

# Current Group Structure

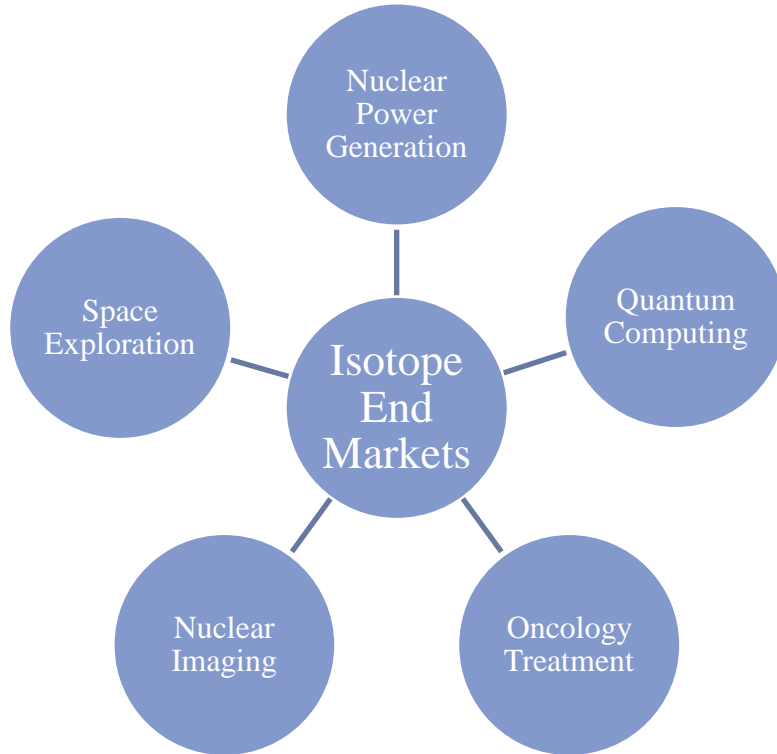
- Most customers contract through ASPI Guernsey
- Intellectual Property largely owned by ASPI (UK)

- Quantum Leap Energy (QLE) will likely be span out as a separate company with its own management team and independent board of directors during 2024.

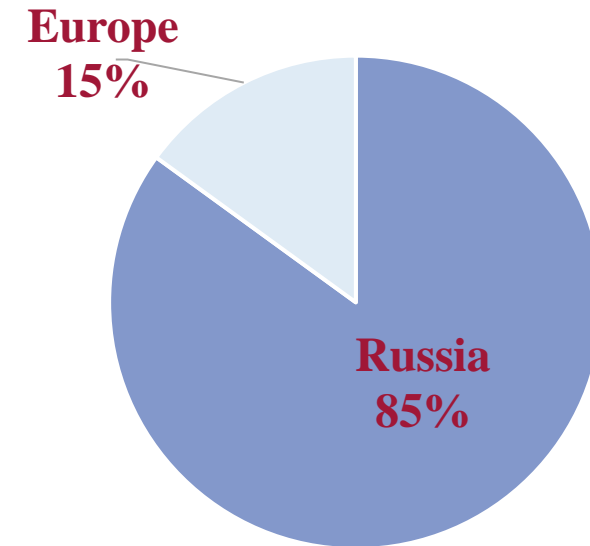


# Isotope Production is Essential for National and Global Security

Isotopes have one of the most severely compromised supply chains of any material in the world and are Critical to the following end markets.



## Historical Isotope Market Producers<sup>1</sup>



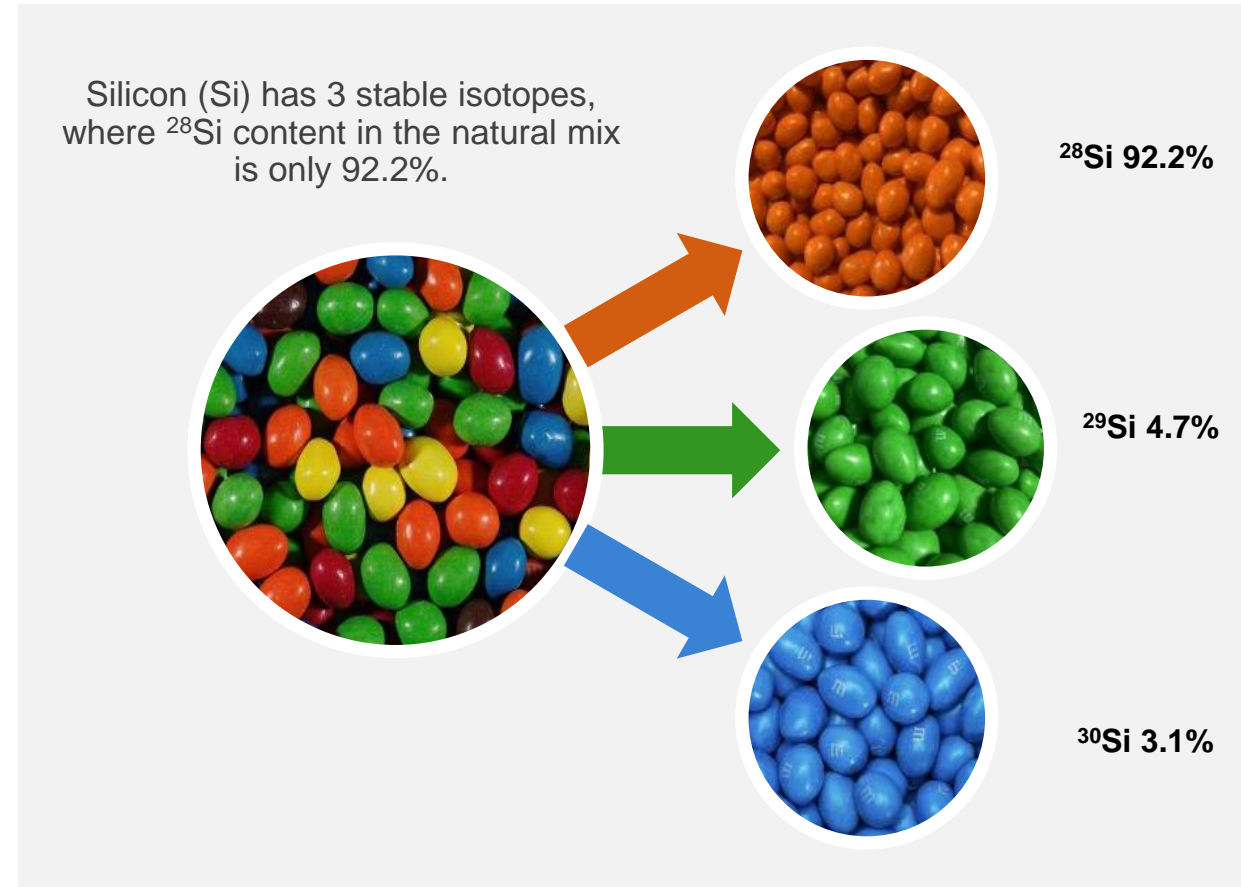
The World remains susceptible to Global disruption of industrial production, electricity generation, national defense, and the entire economy at large. The existence of many industries and defense capabilities faces existential risk without a secure isotope supply.

1. [https://science.osti.gov/-/media/np/nsac/pdf/docs/2015/2015\\_NSACI\\_Report\\_to\\_NSAC\\_Final.pdf](https://science.osti.gov/-/media/np/nsac/pdf/docs/2015/2015_NSACI_Report_to_NSAC_Final.pdf)

# What Is An Isotope?

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

- Isotopes are two or more atoms of the same chemical element with the same number of protons and electrons but slightly different numbers of neutrons.
- Isotopes are found in nature mixed together, just like M&M chocolate candies: same composition, taste, and size – just different colors. The isotope separation process should sort them into fractions of precisely 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.



**We aim to increase (enrich)  $^{28}\text{Si}$  content from its natural 92.2% content to the required >99.995% purity product by removing the  $^{29}\text{Si}$  and  $^{30}\text{Si}$  isotopes.**

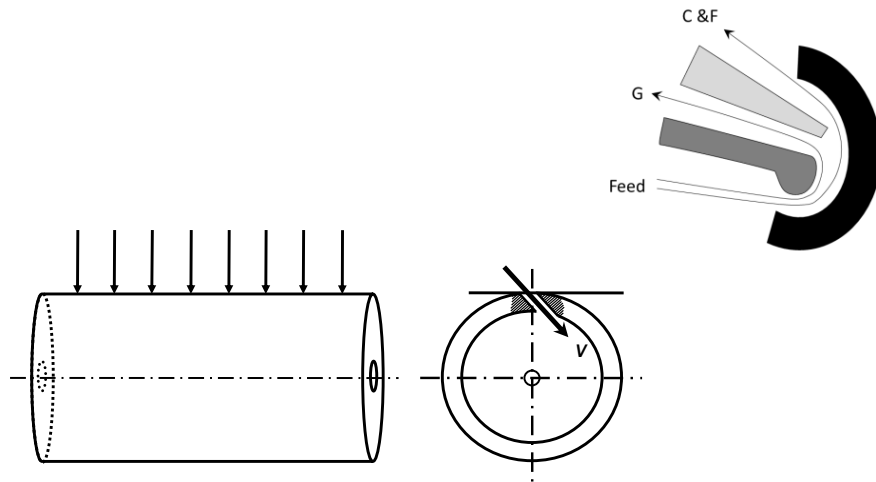
# Isotopes of Interest

Isotopes	End-Market	R&D Stage	R&D Evaluation	Under Construction	Anticipated Market Entry
Carbon-14	Pharma & Agrochem				2024
Silicon-28	Quantum Computing				2024
Germanium-70/72/74	Quantum Computing				2025
Molybdenum-100	Nuclear Medicine				2024
Molybdenum-98					2024
Zinc- 67/68	Nuclear Medicine				2025
Ytterbium-176					2025
Nickel-64					
Xenon-129/136	Green Nuclear Energy				
Chlorine-37					
Lithium-6					
Uranium-235					

# Summary of ASP Technologies

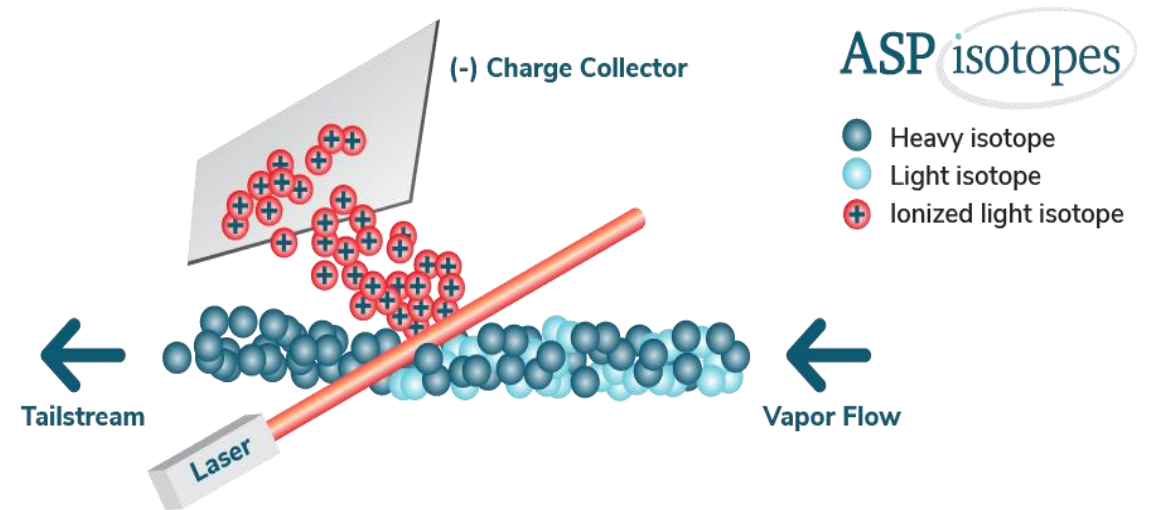
## Aerodynamic Separation Process (ASP)

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.



## Quantum Enrichment

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 Plants: Small, Versatile and Modular

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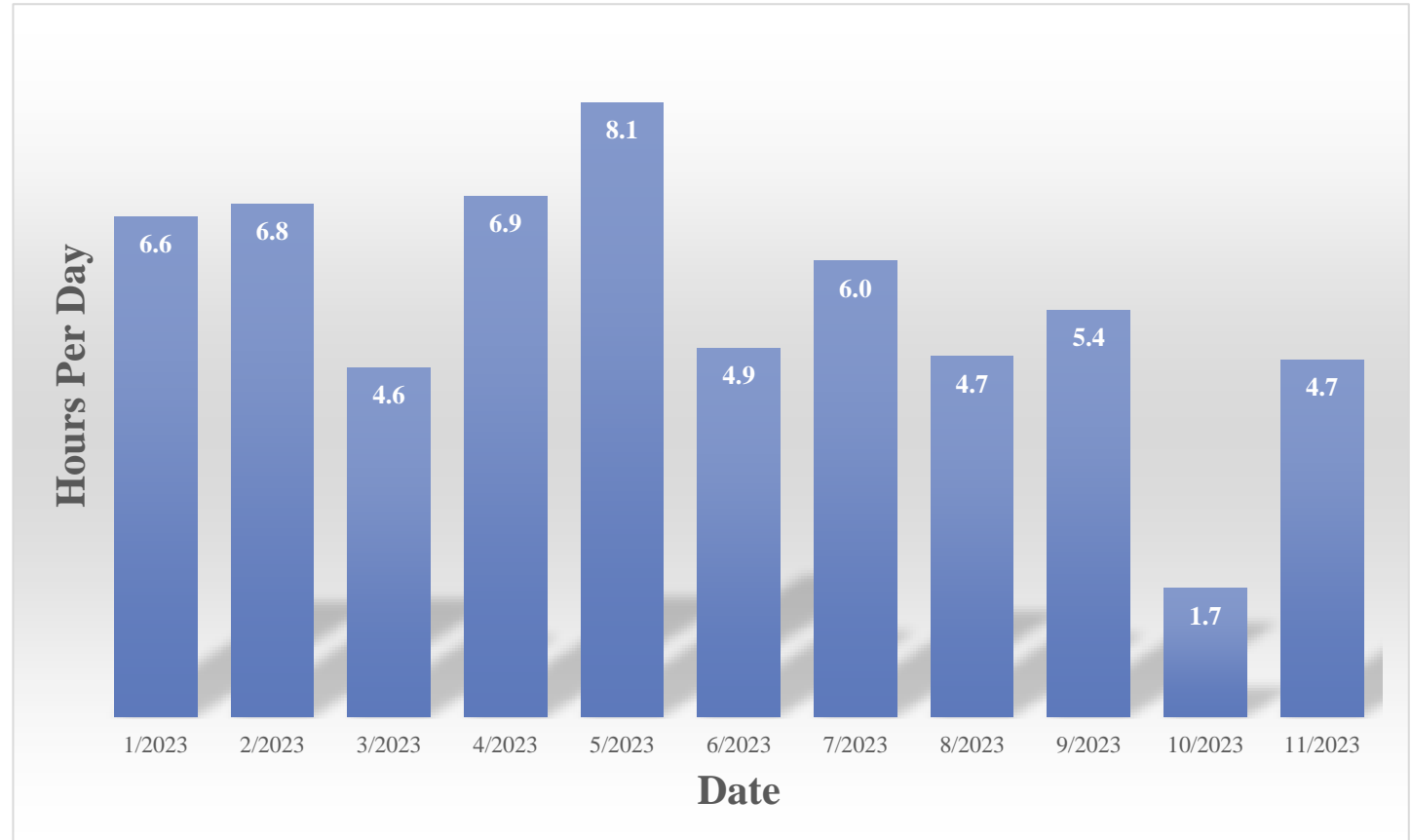




# South African Energy Overview



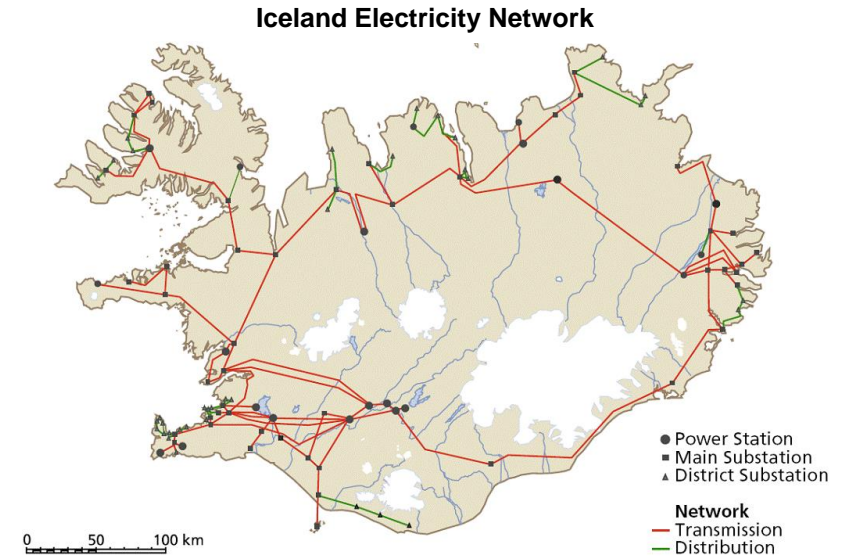
Loadshedding Daily 2023 Average = 5 ¾ hours



# Future Growth Plans to Scale ASPI Business into new Isotopes

## Iceland identified as the likely optimal location for expansion:

- Iceland's policy is to attract high-tech green industry into the country to support its own long-held ESG-based ethos.
- Likely government support from relevant government ministries and Non-Proliferation Regulators. Advisors currently engaged to support regulatory applications which are in progress.
- Plant Location will be conveniently located nearby international airport, shipping port and source of skilled workforce.
- Long-term Energy Solution:
  - Iceland has an extremely sophisticated private green energy supply system, where a customer can select the provider, and ultimate source of the energy they consume. **A local green energy provider has provided quote for 10+ year energy supply at <5 ¢/Kw/h.**
- Expect to produce multiple 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.**



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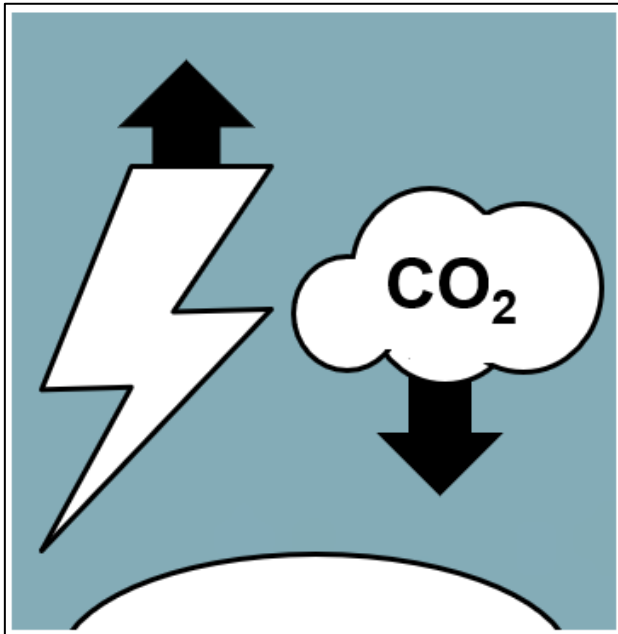
# QUANTUM LEAP ENERGY



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

Global Electricity Production needs to double by 2050.

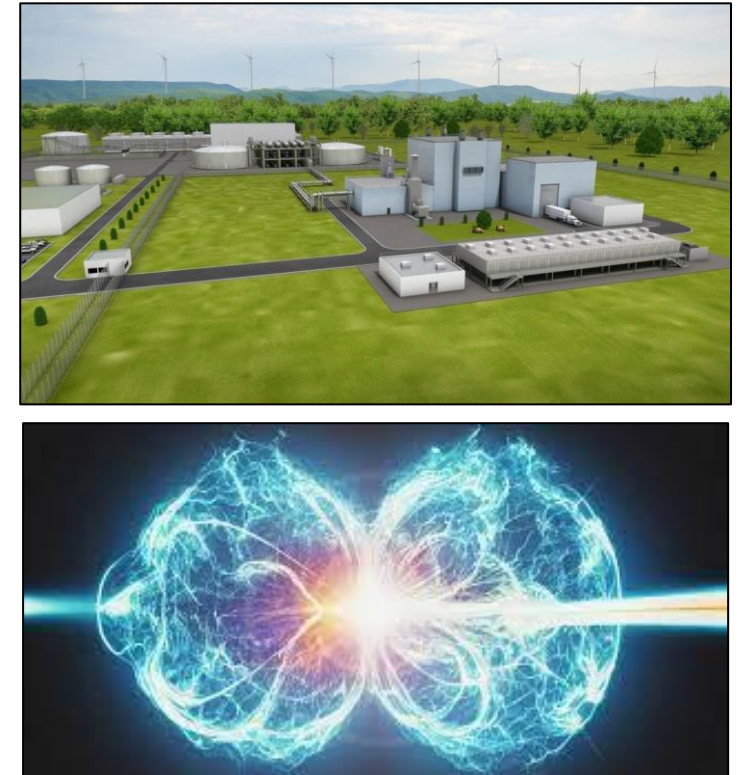
At the same time, the world needs to achieve carbon neutrality.



Protesting is not going to Solve the Problem...



... The Solution Requires Innovation and Investment

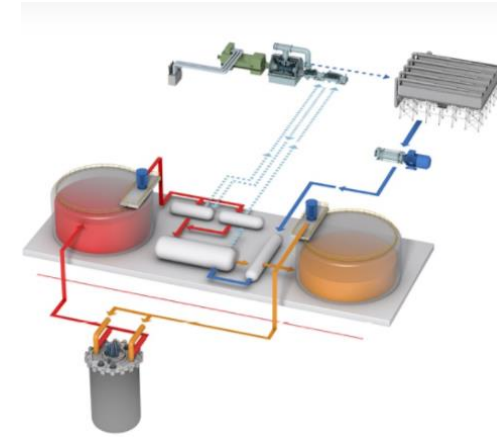


# SMR (Small Modular Reactors) = Next Wave in Nuclear Energy

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

TerraPower's Natrium



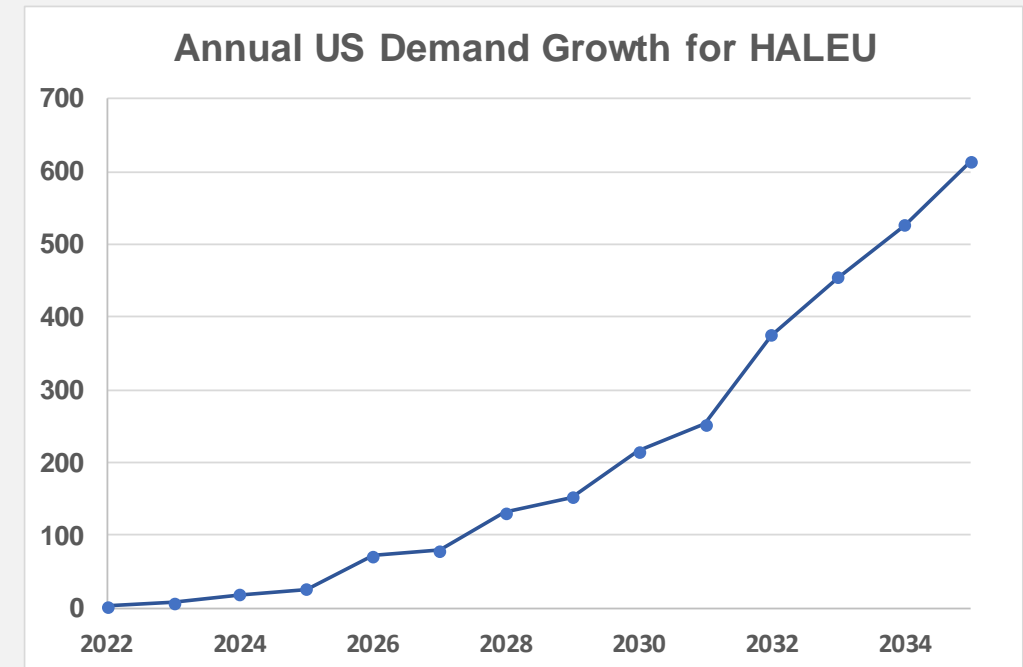
X-Energy's Xe-100



Rolls-Royce's SMR

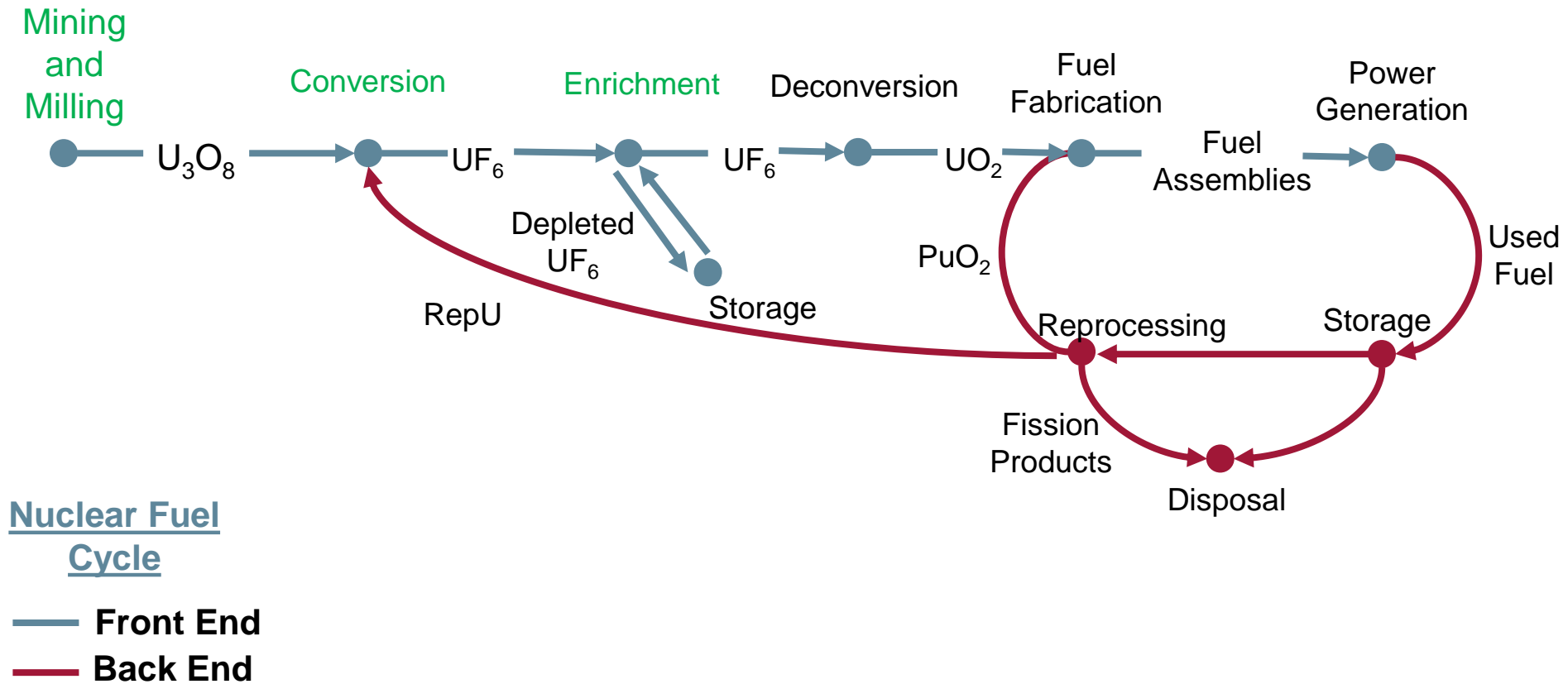
# HALEU Supply Issue Looming for SMR Reality

- Current commercial LWRs use low-enriched uranium (LEU) which has less than 5%  $^{235}\text{U}$  content.
- Many SMRs and advanced reactors will require High Assay Low Enriched Uranium (HALEU) with  $^{235}\text{U}$  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.
- Recently TerraPower delayed the start-up of its SMR from 2028 by at least 2 years due to the lack of availability of HALEU.
- Many other SMR Companies are in a similar position.



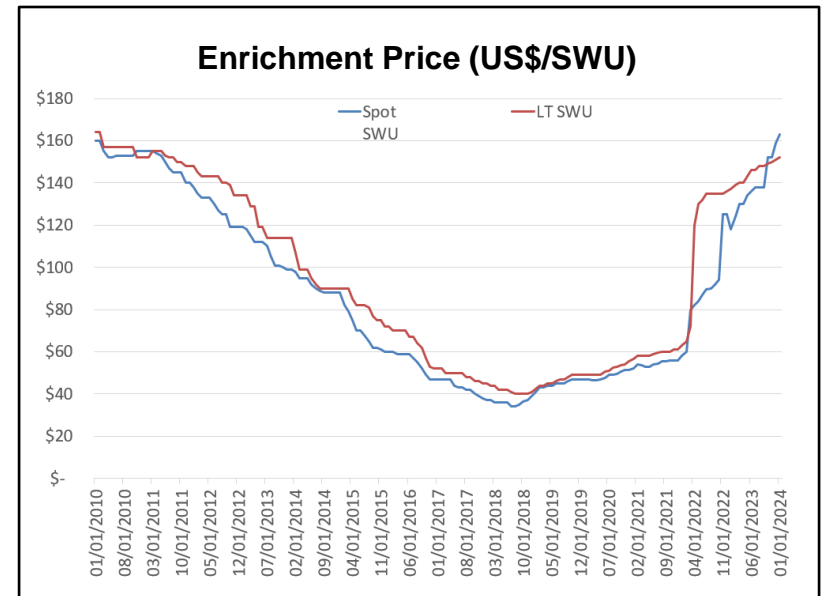
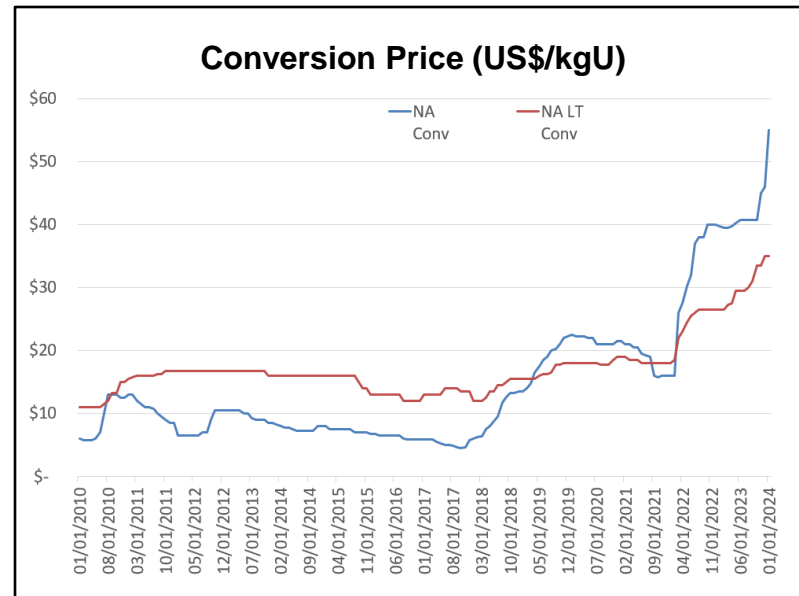
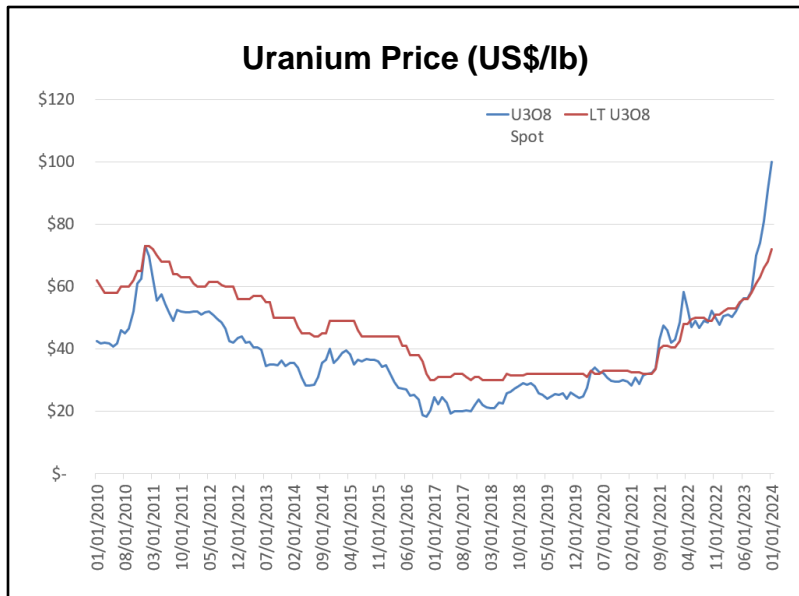
- The U.S. government has made a multi-billion-dollar commitment to help commercialize HALEU-fueled advanced reactors. Inflation Reduction Act passed August 2022 - supporting nuclear power generation and domestic nuclear fuel supply including \$700 Million funding for the DOE's HALEU Availability Program.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

# Nuclear Fuel Cycle



# Nuclear Fuel Chain Prices

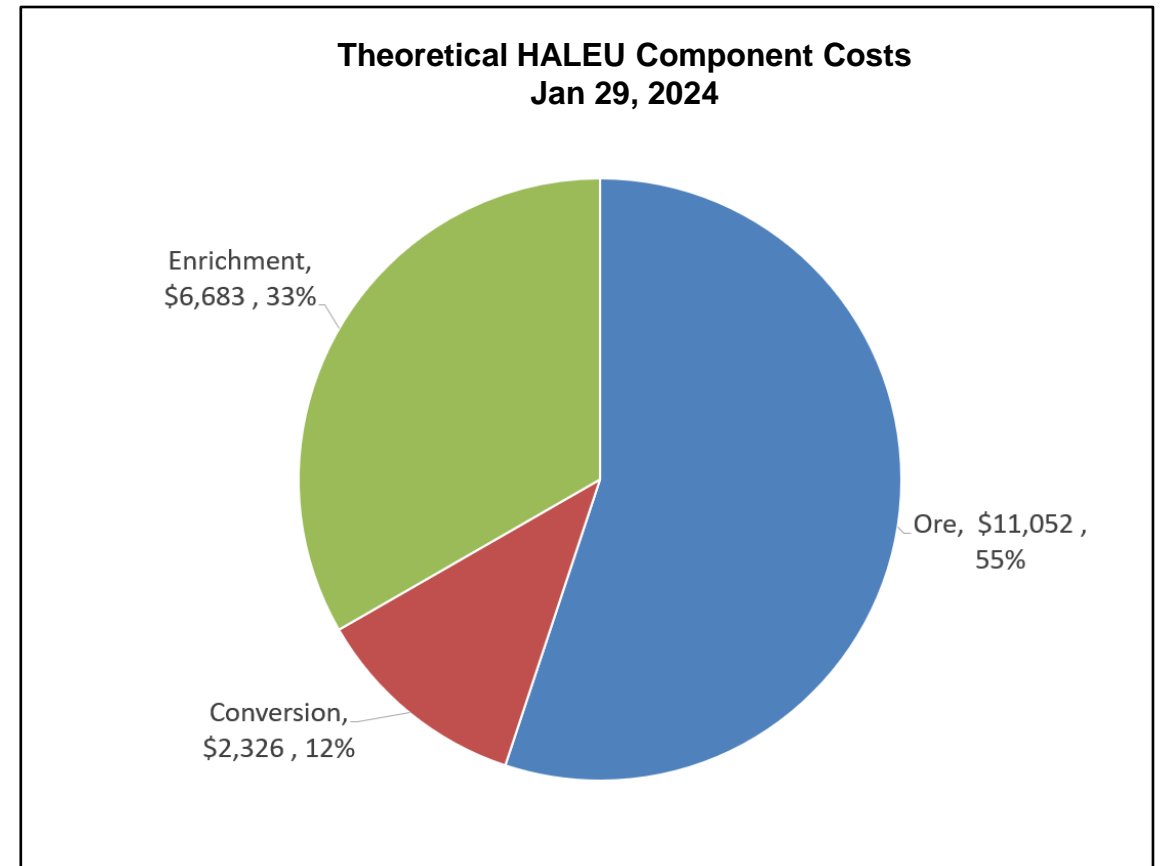
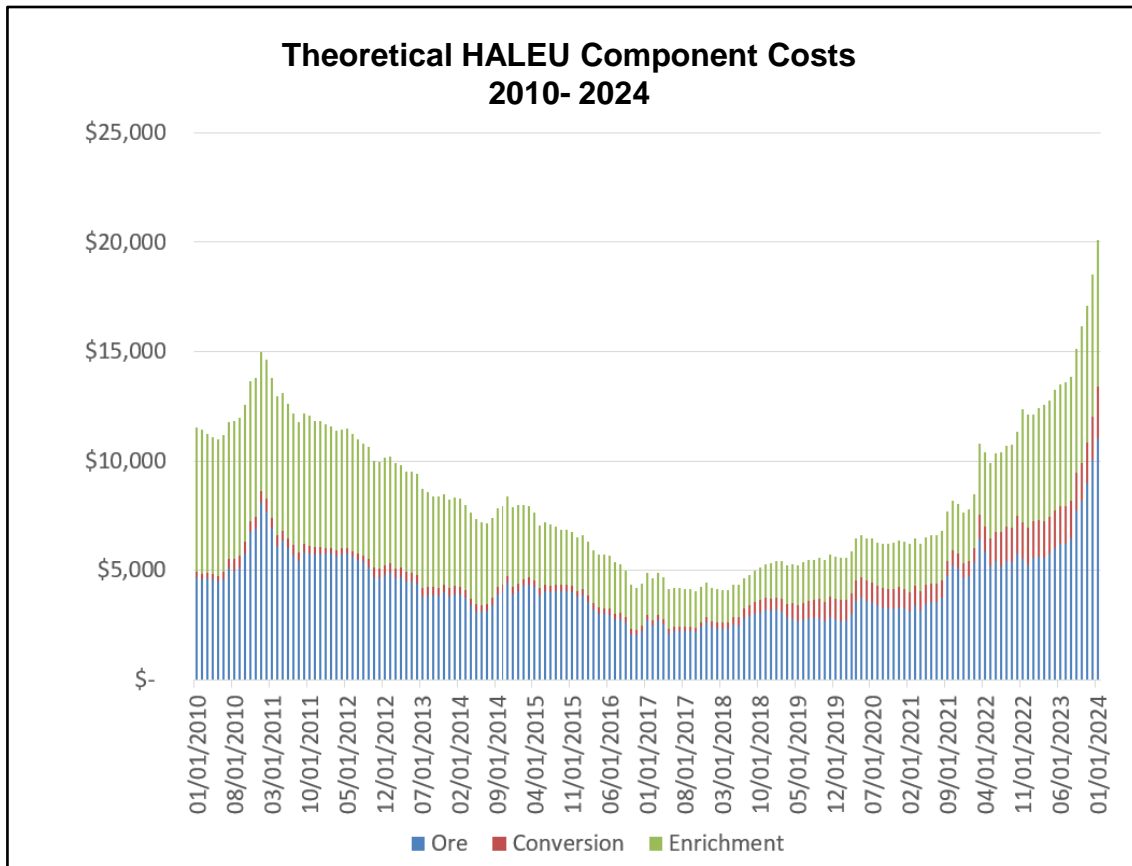
- Uranium supply has been in a state of sustained deficit since 2018, which is widening due to years of underinvestment in uranium assets, resulting in production issues from the world's largest suppliers.
- Meanwhile, demand for front-end nuclear fuel (U3O8, UF6, EUP) continues to grow given ambitious 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.





# Implications for HALEU

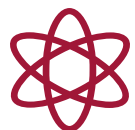
- If available (currently there is no western supplier of HALEU), HALEU would likely cost >>\$18,000 per Kg.
- Many SMR company's based their business plans assuming HALEU <<\$10,000 per Kg



# Comparing and Contrasting Enrichment Methods

	Gaseous Diffusion	Centrifugation	Molecular Laser Isotope Separation (MLIS)	Atomic Vapor Laser Isotope Separation (AVLIS)	Silex Systems	Quantum Enrichment (used by QLE)
<b>Cost</b>	High capital cost	Capital 1/10 of Diffusion	Low Capital, small size	Low Capital, small size	Low Capital, small size	Low Capital, small size
<b>Speed</b>	High pressure	High speed	UF6 Flow Cooling (80K)	U metal 3000K	Adiabatic expansion nozzles (10 – 20K)	U metal 3000K
<b>Technology Notes</b>	High technology	Rotor design & material	Multiphoton Dissociation	Selective Photoionization	Laser excitation transmission by skimmer	Enhanced resonant multiphoton ionization
<b>Selectivity</b>	Selectivity $\alpha \geq 1.003$	Selectivity $\alpha \geq 1.15$	Selectivity $\alpha \geq 1.05$	Selectivity $\alpha \geq 10-50$	Selectivity $\alpha \geq 2 - 20$	Selectivity $\alpha \geq 50$
<b>SWU</b>	2500 kWh/SWU	50 kWh/SWU	30 kWh/SWU	40 kWh/SWU	Estimate < 50 kWh/SWU	40 kWh/SWU
<b>Stages Required</b>	500 Stages to reactor grade	50 Stages	120 Stages	1-2 Stages	1-2 Stages	Single stage

# Current Implications of Depleted UF6 tails



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



We believe that our Process has the ability to 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



(1) The amount of accumulated DUHF by countries of the world-Great Encyclopedia of Oil and Gas

## Depleted UF6 Tails by Country<sup>1</sup>

Location	Accumulated Depleted UF6 (in tons)	Annual Increase in Reserves (in tons)
USA	700,000	30,000
Russia	640,000	15,000
France	200,000	18,000
BNFL (Great Britain)	44,000	-
Urenco (Germany/ UK/ netherlands)	43,000	6,000
Japan	38,000	700
China	30,000	1,500
South Africa	3,000	-
Others	1,500	-
<b>Total</b>	<b>1,699,500</b>	<b>71,200</b>

# Investment Thesis

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## 1. Proven & Proprietary Technology

ASPI's advanced technology platform leverages 20 years of R&D history to enrich isotopes in varying levels of atomic mass. Its innovative technology will enable the company to manufacture a diverse range of isotopes, which will meet the growing demand in the Nuclear Medicine and Green Nuclear Energy industry.



## 2. Multiple Geopolitical Tailwinds Favor Rapid Expansion

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.



## 3. Consistent Operational Performance

Since incorporation (2 years ago) we have completed the construction of our first manufacturing facility, and we continue to expand our operating footprint in South Africa. Our South African facilities are expected to enter commercial production during 2024 and should drive free cash flow.

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# Questions?