

Silex Systems – Presentation

World Nuclear Association Symposium 2016

14 September 2016

Dr Michael Goldsworthy, CEO and Managing Director of Silex Systems Limited (ASX: SLX) (OTCQX: SILXY) ('Silex'), will deliver the attached presentation at the World Nuclear Association Symposium in London today.

Further information on the Company's activities can be found on the Silex website: www.silex.com.au or by calling +61 2 9704 8888.

Forward Looking Statements and Business Risks:

Silex Systems is a research and development Company whose primary asset is the SILEX laser uranium enrichment technology, originally developed at the Company's technology facility in Sydney, Australia. The SILEX technology, licensed exclusively to GE-Hitachi Global Laser Enrichment LLC (GLE) in the USA, is currently in the engineering development stage and plans for commercial deployment remain distant and high risk. Silex also has an interest in a unique semiconductor technology known as 'cREO™' through its ownership of subsidiary Translucent Inc. The cREO™ technology is exclusively licensed to IQE Plc based in the UK. IQE is progressing the cREO™ technology towards commercial deployment in various advanced semiconductor products. The outcome of IQE's commercialisation program remains high risk.

The commercial potential of these two technologies is currently unknown. Accordingly, the statements in this announcement regarding the future of the SILEX technology, the cREO™ technology and any associated commercial prospects are forward looking and actual results could be materially different from those expressed or implied by such forward looking statements as a result of various risk factors.

Some risk factors that could affect future results and commercial prospects include, but are not limited to: results from the SILEX uranium enrichment engineering development program being conducted jointly by the Company and GLE; the demand for natural uranium and enriched uranium; the time taken to develop the SILEX technology; results from IQE's commercialisation program and the demand for cREO™ products, the potential development of competing technologies; the potential for third party claims against the Company's ownership of Intellectual Property; the potential impact of government regulations or policies in the USA, Australia or elsewhere; and the outcomes of various commercialisation strategies undertaken by the Company and/or its Licensees GLE and IQE.

The views and opinions expressed herein are solely those of Silex and do not reflect the view of GE-Hitachi Global Laser Enrichment LLC, or its owners or subsidiaries.



The Future of the SILEX Laser Enrichment Technology

Dr Michael Goldsworthy, CEO
Silex Systems Limited

14 September 2016

Forward Looking Statements



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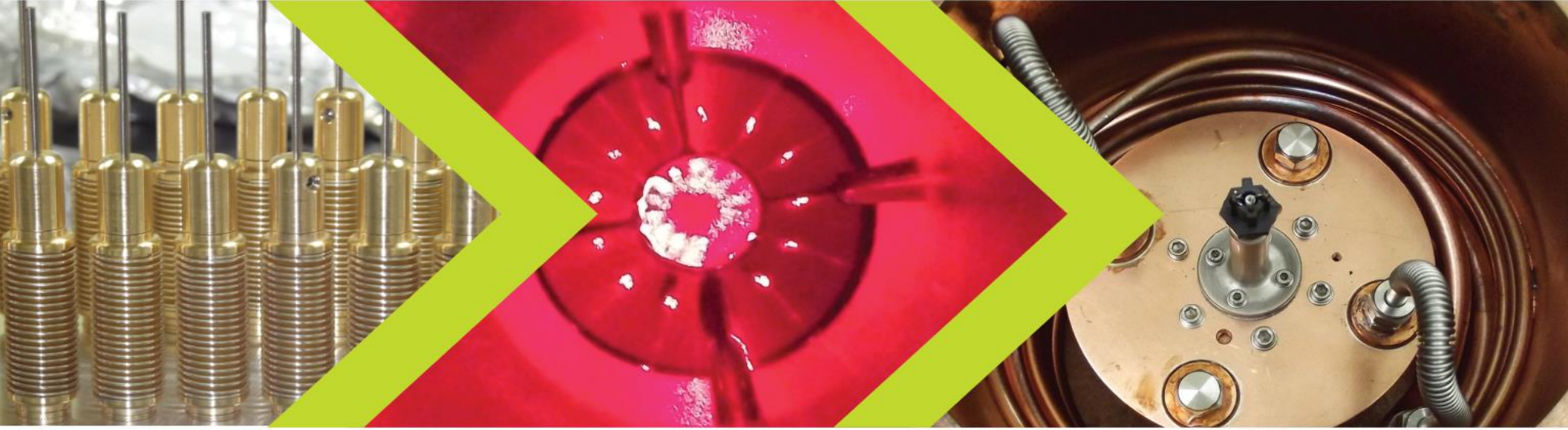
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The forward looking statements included in this presentation involve subjective judgment and analysis and are subject to significant business, economic and competitive uncertainties, risks and contingencies, many of which are outside the control of, and are unknown to Silex. Given these uncertainties, you are cautioned to not place undue reliance on such forward looking statements.

Silex Systems Limited

Silex Systems (Silex) is an advanced technology company listed on the Australian Stock Exchange, primarily focussed on the commercialisation of its innovative SILEX laser enrichment technology.



Overview of the SILEX Technology



Enrichment Technology Overview

- SILEX - third generation laser enrichment technology
 - SILEX - **S**eparation of **I**sotopes by **L**aser **EX**citation
 - Highly selective laser (optical) excitation of $^{235}\text{UF}_6$ to separate isotopes
 - Much higher enrichment efficiency than centrifuge – expect lower SWU costs
 - Only large scale commercialisation program in the world today

Uranium Enrichment Technology

Gaseous Diffusion



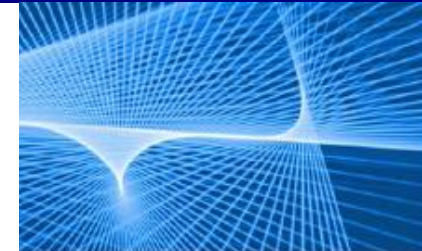
- 1st generation technology
- $\beta = 1.004$
- High cost
- Obsolete

Centrifuge



- 2nd generation technology
- $\beta \sim 1.25$
- Lower cost
- Current technology

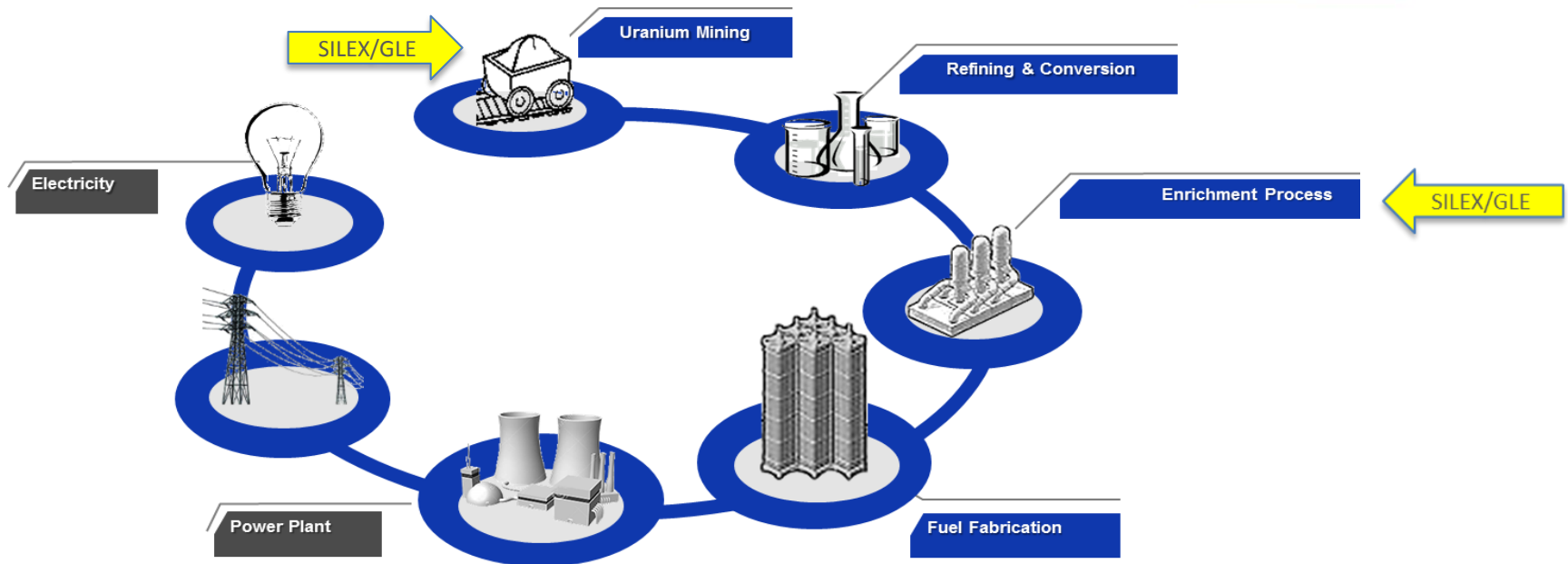
Laser Excitation



- 3rd generation technology
- $\beta \sim 2 - 20^1$
- Most cost effective
- Advancement beyond State-of-the-art

1. Classified number

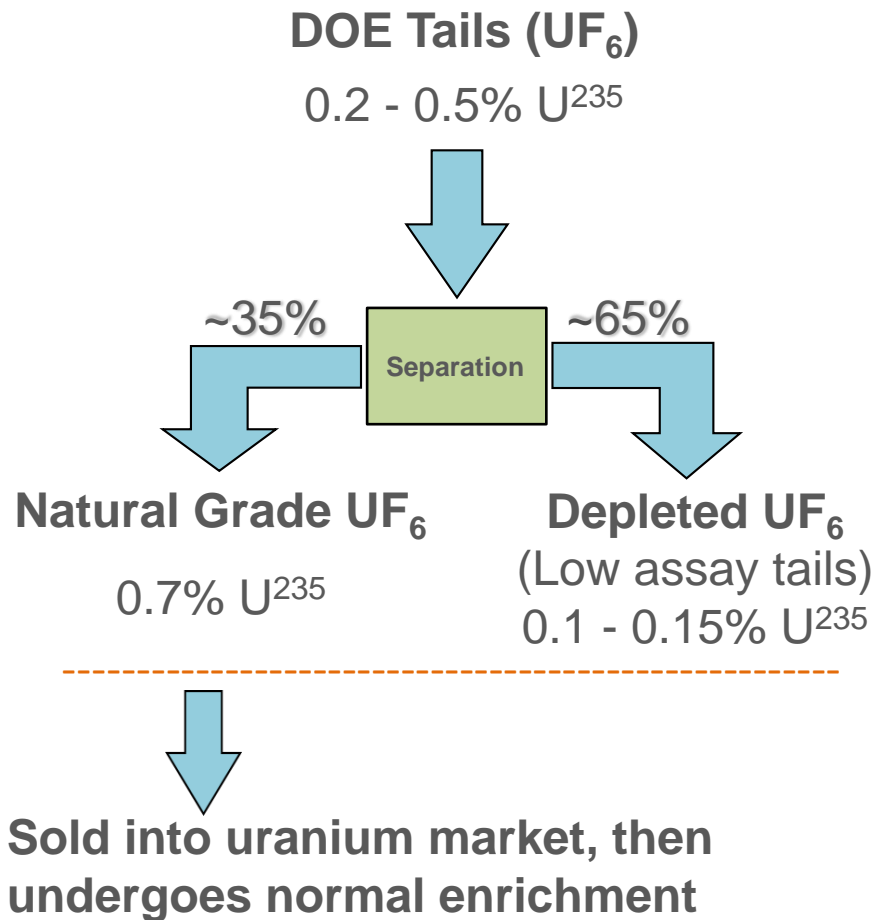
SILEX and Nuclear Fuel Production



- The SILEX technology can be utilized to produce:
 - i) natural grade uranium via re-processing of tails inventories
 - ii) enriched uranium for use as fuel in nuclear power reactors
- Uranium (~40%) and enrichment (~30%) comprise ~70% of the value in a fuel bundle (based on current market pricing)

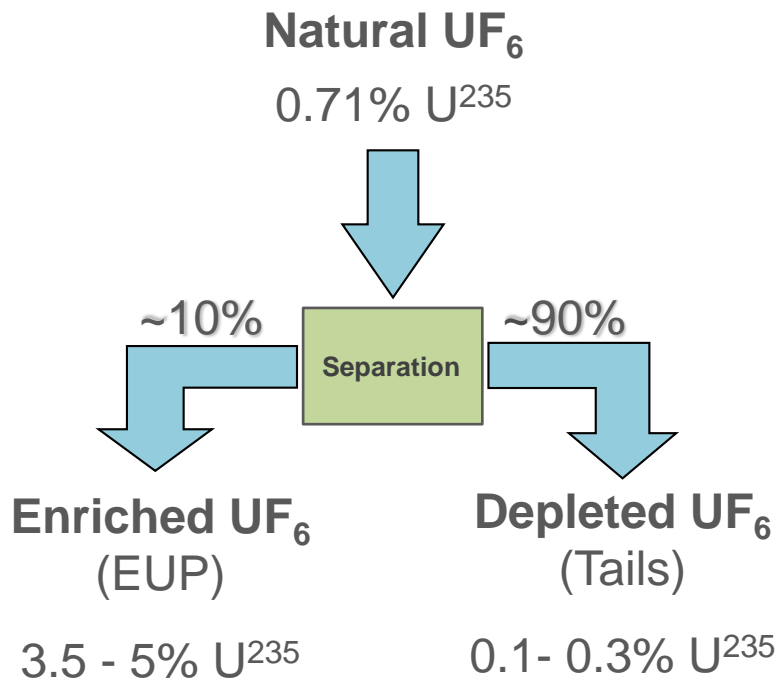
The Tails Re-Processing Opportunity

A Tier 1 Uranium Asset



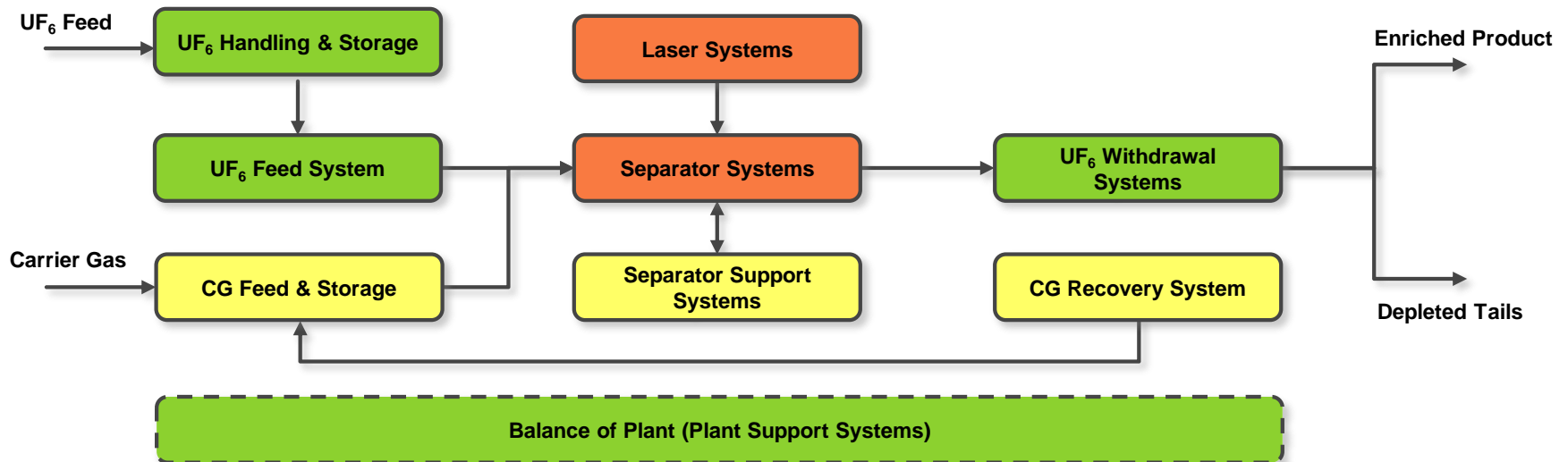
- The US DOE holds over 500,000 MTU of tails material from decades of operations
- Approximately ~300,000 MTU are regarded as 'high assay tails' (over ~0.25%)
- GLE's proposal to use efficient SILEX technology could recover around a third of these stockpiles as natural grade uranium
- Current estimates of U production cost make Paducah a Tier 1 uranium asset
- The uranium will be sold into the uranium market and then enriched to reactor grade fuel
- Potential exists to source other stockpiles of high assay tails around the world




The SILEX Enrichment Process

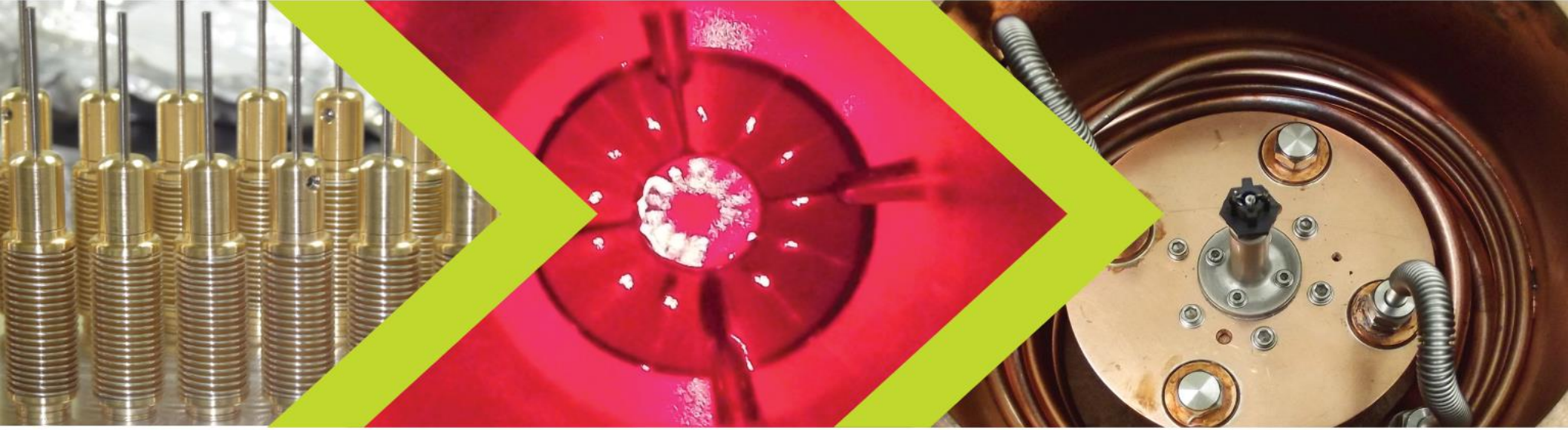


- Technically difficult to separate U²³⁵ - high barriers-to-entry
- An essential step in producing nuclear fuel for most of today's power reactors
- Nearly all enrichment is currently performed with gas centrifuge technology
- Centrifuge has very high capital costs
- SILEX laser technology inherently much higher efficiency → lower costs
- SILEX capital costs potentially half (or less) of centrifuge capital costs

SILEX Technology - Process Flow Diagram



-  Mostly new technology
-  Known technology adapted
-  Same as gas centrifuge



The SILEX Technology License Agreement and Commercialisation Program



SILEX License Agreement Overview



Technology License Agreement with Global Laser Enrichment (GLE)

- Exclusive worldwide commercialisation and license agreement for the SILEX technology – signed in 2006
- Phase I milestone completed in May 2013 – triggered US\$15 million payment to Silex
- Next milestone payment triggered by start of construction of initial commercial plant: US\$5 million
- Final milestone payment – US Nuclear Regulatory Commission (NRC) verification of construction compliance of initial commercial plant: US\$15 million
- Royalty streams payable upon use of SILEX technology for both normal enrichment and tails enrichment operations
- Perpetual royalty in range of 7% to 12% of future GLE revenues from commercial operations (based on calculation of cost per unit production installed)

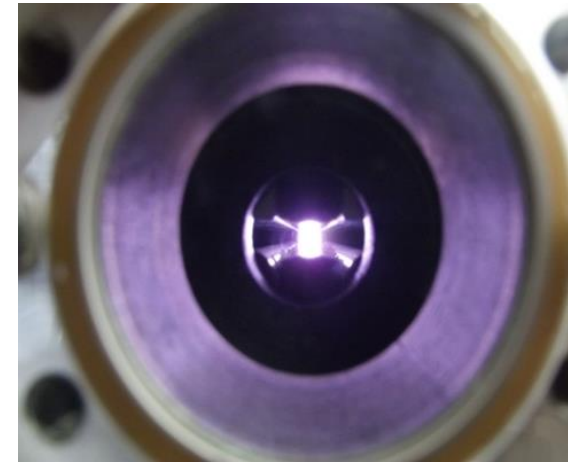
Commercialisation Program Background



- 2006: GE signed License Agreement with Silex Systems (inventor) of Australia
 - Technology transferred to US in 2007 under US-Australia Bilateral Treaty
- 2007: GE and Hitachi partnered to form GLE – based in Wilmington, NC
- 2008: Cameco became a 24% owner in GLE for \$124M
 - Remainder held by GE (51%) and Hitachi (25%)
- 2010: Test Loop demonstration facility began operating in Wilmington
- 2012: World's first license for planned laser enrichment plant granted by US NRC
- 2013: DOE selected GLE's proposal for a tails enrichment plant in Paducah, KY
- 2014: GLE's development program slowed to align with adverse market conditions
- 2015: Key technology demonstration activities – independent consultants verify progress
- 2016: GEH discloses intent to exit GLE – Silex signs Term Sheet with GEH (29 April)

GLE's Phased Approach to Commercialisation

- Phase I: 'Technology Validation' successfully completed in 2013 with the Test Loop Facility
- Phase II: 'Economic Validation' is the focus for the next few years, including demonstration of full scale commercial production capability
- Plans include an opportunity for first commercial plant in Paducah, KY - currently being finalised with US Department of Energy (refer slide 14)
- Additional plans for commercial enrichment plant of up to 6MSWU in Wilmington, NC (US NRC Construction & Operating License received 2012)



Phase	Objectives	Status
Phase I	Test Loop technology demonstration and NRC commercial plant license approval	Completed 2013
Phase II	Economic and engineering validation for the initial commercial production module	Commenced in 2013
Phase III	Construction of the first full-scale commercial production facility	To be confirmed

Paducah Tails Enrichment Plant Opportunity

A key bridging project to commercial deployment

- DOE selected GLE's proposal for a commercial laser enrichment plant at Paducah in November 2013
- Enrichment of DOE tails stockpiles equivalent to a large, low cost uranium mine operating for at least 40 years
- SILEX efficiency enables very effective tails stripping capability – providing attractive economics
- The Paducah opportunity represents an ideal path to market – smaller plant and lower cost
- Possible funding of plant through the DOE's Loan Guarantee Program could help de-risk the enterprise
- Attractive IRR potential – mid-teens, and possibly higher depending on uranium price recovery and Loan Guarantee
- Will allow full scale commercial deployment and provide foundation for future larger SWU plants
- Finalisation of negotiations between the GLE and DOE expected shortly



Paducah Enrichment Plant Site

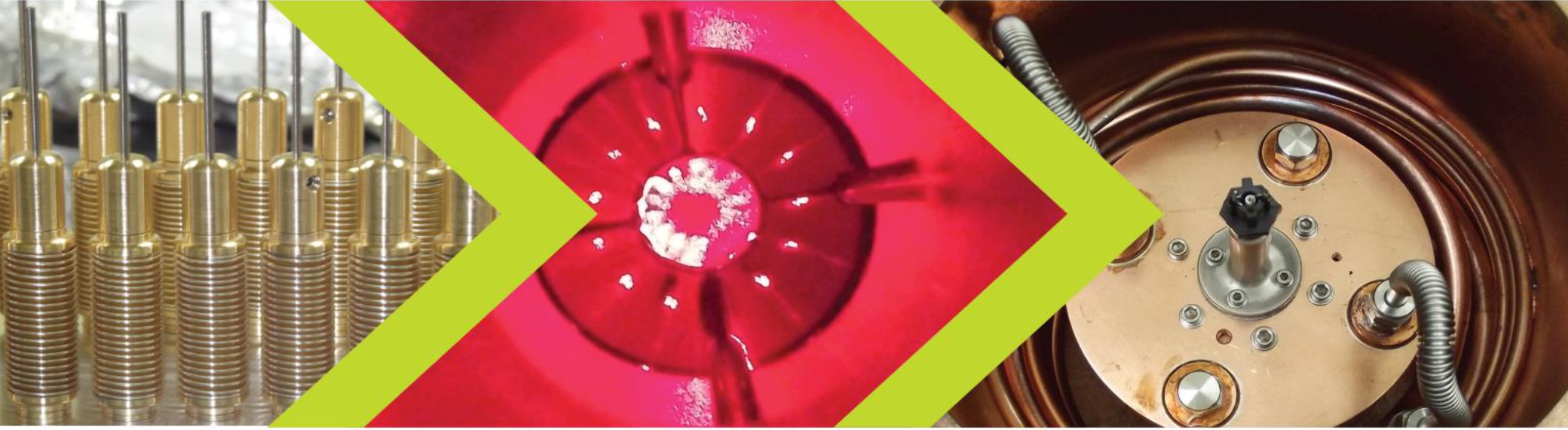
Wilmington Enrichment Plant Opportunity

NRC License obtained in 2012

- US enrichment demand currently ~15 MSWU total
- Current enrichment capacity in the US is only one third of US requirements (4.7 MSWU - Urenco USA)
- Positive support from US utilities for a new low-cost US-based SWU supplier
- GLE submitted application for a proposed 6MSWU enrichment plant in Wilmington, NC to the NRC in 2009
- NRC approved a combined construction and operating license (COL) for the Wilmington plant proposal in 2012
- The Wilmington plant COL approval is the first license in the world for a laser enrichment facility
- Potential Wilmington enrichment plant site conveniently located next to GNF's fuel fabrication plant



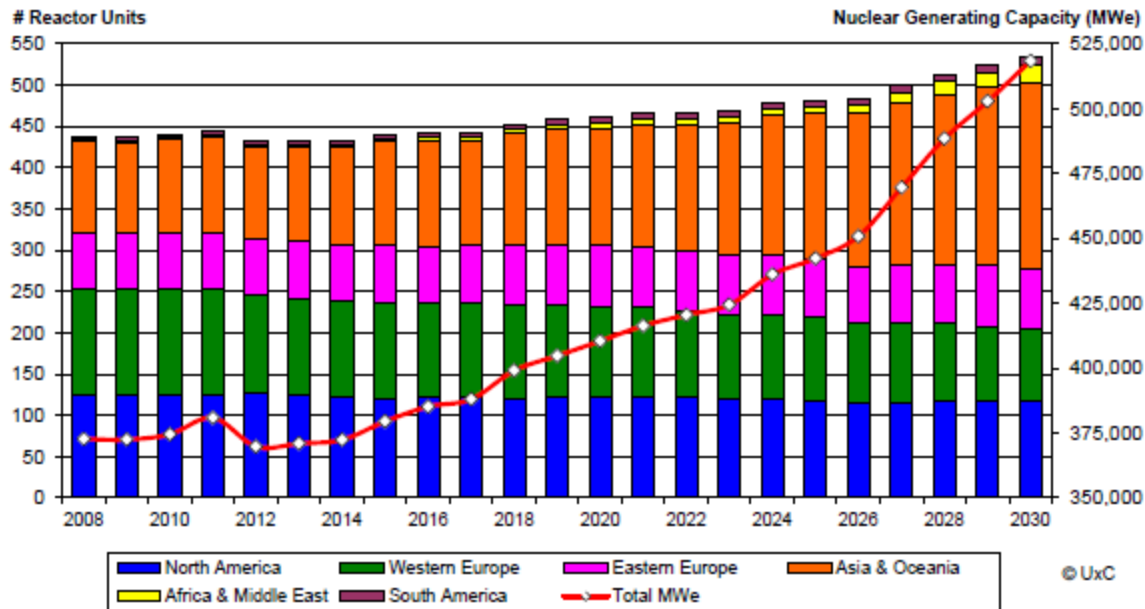
GE Hitachi HQ, Wilmington, NC



The Market Outlook – Uranium and Enrichment

Nuclear Power Forecasted to Grow Through 2030

Nuclear Generating Capacity Forecast



Source: UxC Power Market Outlook, Q2 2016

Key Statistics

- ✓ 11 percent of global electricity
- ✓ 445 operable reactors currently
- ✓ 61 new plants under construction
- ✓ 170 plants planned
- ✓ 339 plants proposed

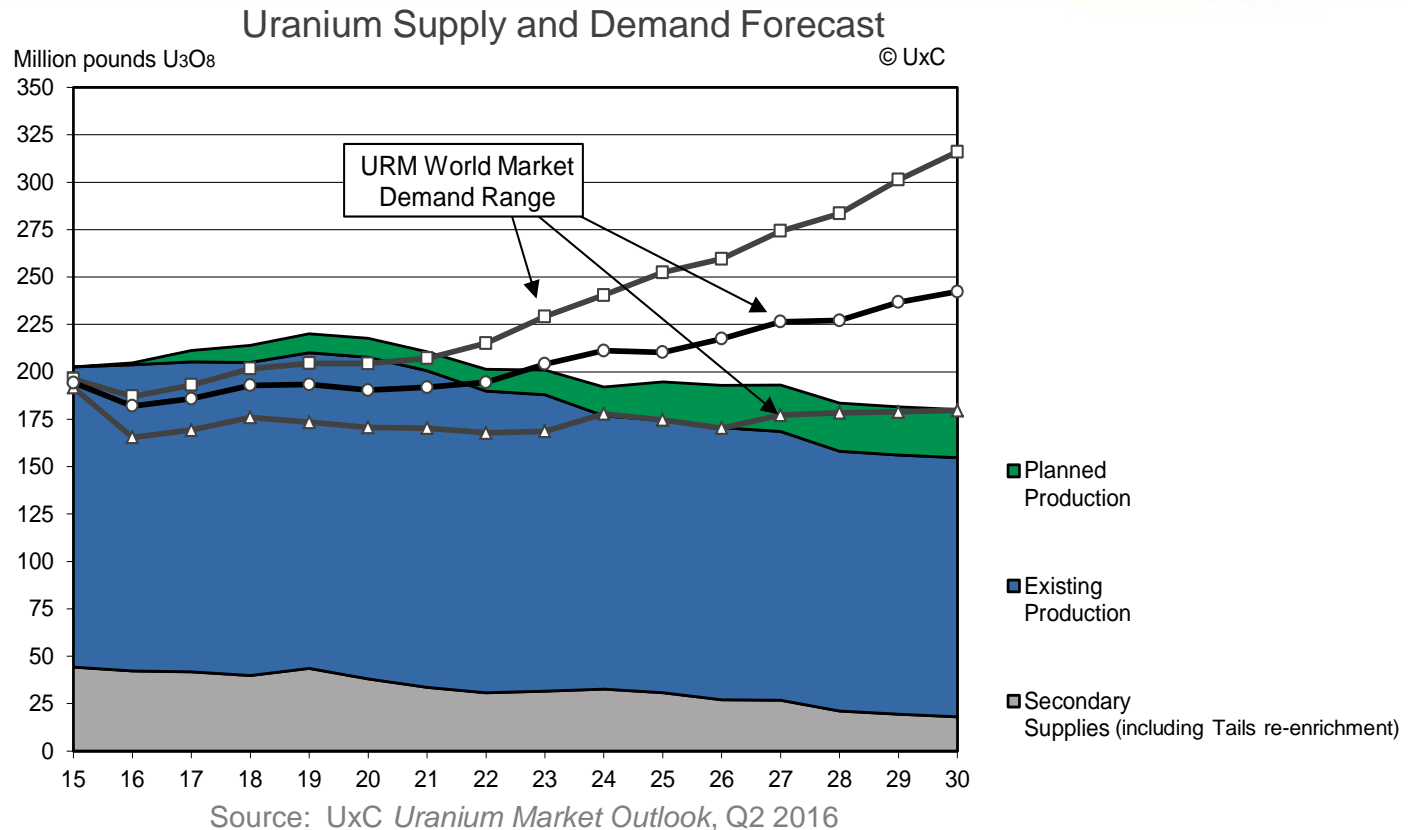
Source: World Nuclear Association – August 2016

Reactor new build dependent on country policies

- Strong support: China, UK, Middle East, Poland, Hungary
- Nuclear power expected to play key role in global CO₂ emissions reduction
- COP21 in Dec 2015, more than 180 countries pledged to meet global warming targets

UxC Market Views

Uranium Market Outlook

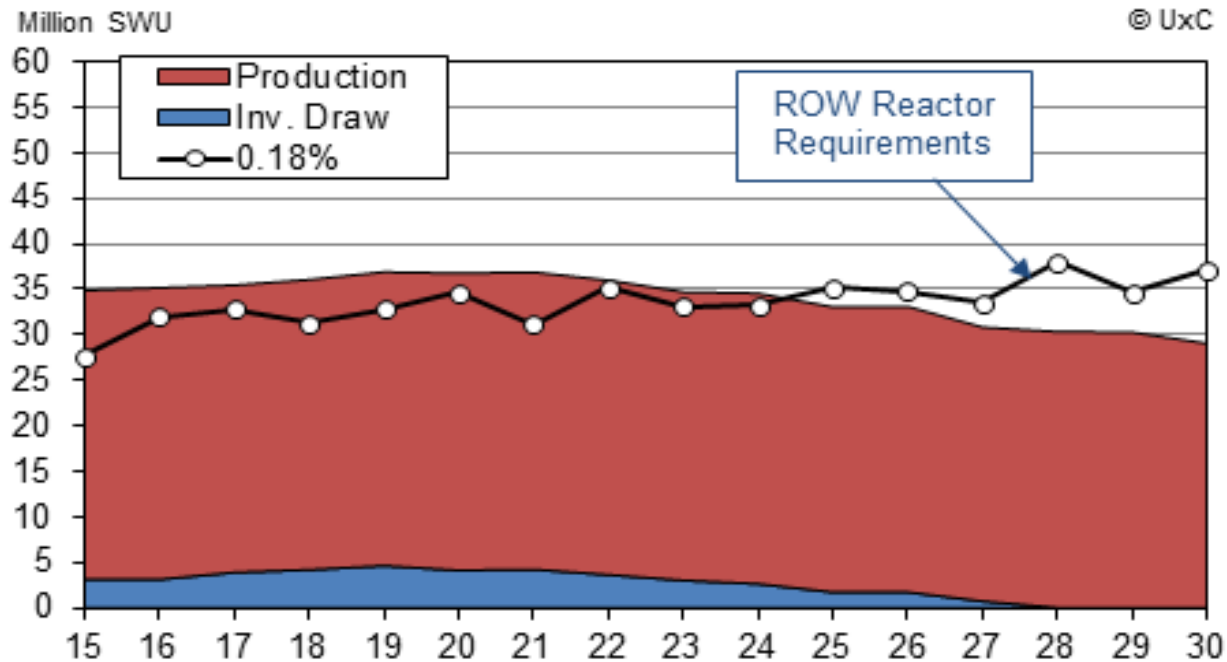


- Uranium supplies remain excess to market demand, under the mid case scenario, until ~2022
- Secondary uranium supplies include production from underfeeding and tails re-enrichment

UxC Market Views

Enrichment Market Outlook

Rest of World (ROW) Enrichment Supply and Demand Forecast



Source: UxC *Enrichment Market Outlook*, Q2 2016

Note: ROW assumes Russia covers all domestic and EU Russian reactor requirements and supplies 20% of U.S. requirements, and China covers only its domestic requirements

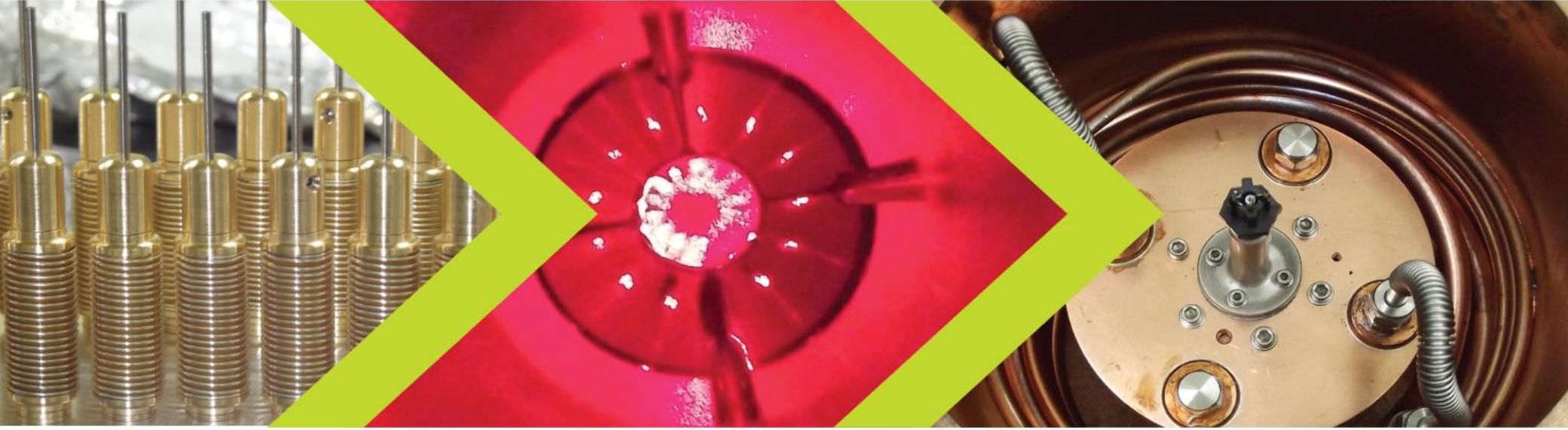
- ROW forecast shows market back in balance ~2022 and then going into supply shortage ~2024
- SWU/Enriched Uranium inventories also begin to deplete ~2020 and are consumed by 2028
- By mid-2020s, additional SWU supply will be needed to meet forecast market demand in ROW

Enrichment Market Considerations

- **High barriers to entry**
 - Highly restricted access to sensitive nuclear technology
 - Only four active producers: Urenco, Areva, Tenex, China
 - High technology hurdle – long history of failed laser enrichment programs
- **Important geopolitical dimension – Russia and China’s rising influence**
 - Russia is largest enricher; China the fastest growing
 - Potential for trade restrictions, supply disruptions
 - Increasing concern to US utilities and others - would support another US supplier
- **Market conditions support GLE market entry in 2020’s**
 - U/SWU price recovery and uncovered demand expected to improve
 - Alignment with future GLE commercial production of enriched uranium
- **Demand could increase as ‘accessible’ supply decreases**



Point to a unique ‘Window of Opportunity’ for GLE



The GLE Restructure Opportunity



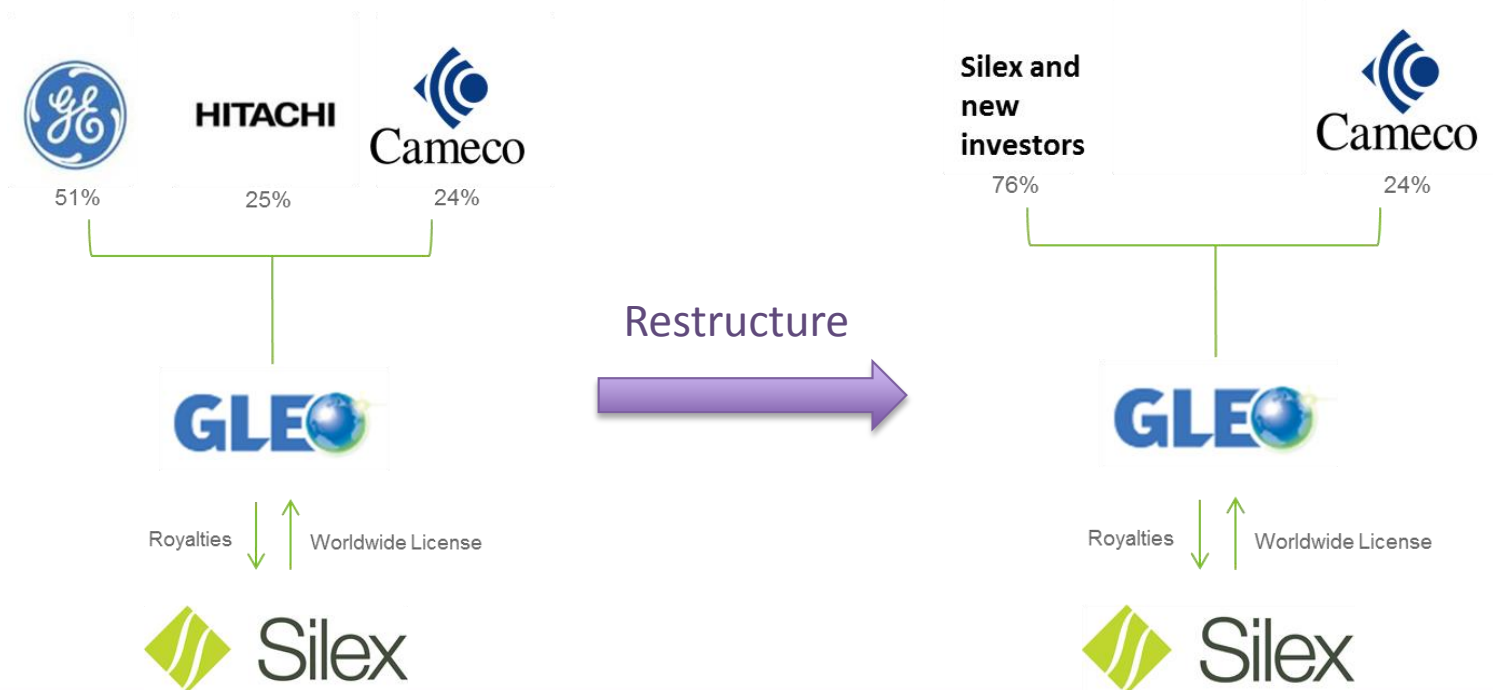
Overview of the GLE Opportunity



- ***GLE is the exclusive Licensee of the SILEX laser uranium enrichment technology***
 - Significantly higher efficiency than centrifuge, lower costs, smaller environmental footprint
 - Inherent flexibility – can decrease/increase capacity ‘at will’, and strip to lower tails assays
 - ***GLE has been advancing the technology towards commercialisation since 2006***
 - Significant investment to date, including the Test Loop demonstration facility in Wilmington, NC
 - Technology is in the engineering scale-up phase – targeting economic validation around 2020
 - ***GLE restructure underway as GE-Hitachi (GEH) - 76% combined ownership - look to exit***
 - Silex and GEH signed Term Sheet April 2016 – exclusive and assignable option over GEH’s 76% stake
 - Cameco (owner of 24% interest in GLE) supportive of GLE restructure and commercialisation
 - Silex leading the process to bring new investment into GLE – discussions with several parties building
 - ***Strong commercial outlook for GLE as markets expected to recover from the early 2020’s***
 - Paducah DOE tails processing proposal represents a ‘Tier 1 uranium mine’ operating for ~40+ years
 - New enrichment capacity in the US could be supported by utilities seeking supply security
- ❖ **GLE restructure is a once-only opportunity to be part of a game-changing technology**

GLE Restructure Highlights

- Unique opportunity to acquire majority/minority equity interest in GLE
- Heavily discounted valuation – small fraction of sunk investment to date
- Profitable from first year of operation based on current economic modelling



The GLE Business Case

Uranium and SWU Production



Global Factors:

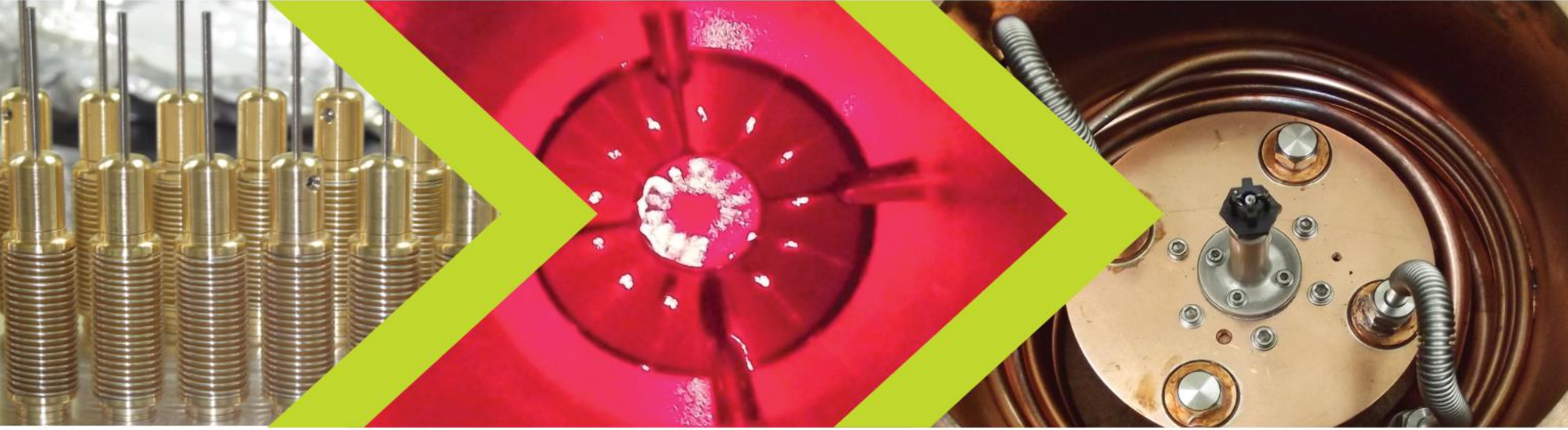
- Global growth in nuclear capacity continues with increasing world energy demand
- Geo-political factors increasing vulnerability with rising influence of Russia and China
- Energy security, grid stability, pollution and climate change could all support future nuclear growth

Uranium Production:

- Curtailment of uranium production and mothballing of resources could create a delay in bringing new, higher cost supply on-line as the uranium market tightens from the early 2020's
- Nuclear power countries (including China, India, US etc) will need stable supplies of uranium
- Reprocessing DOE tails by GLE in Paducah could provide at least 5 million pounds of natural grade uranium per year for ~40+ years (not including other sources of tails) at a low all-in cost

SWU Production:

- Centrifuge enrichers turning capacity over to tails reprocessing and shutting older capacity
- Urenco and Areva curtailed ETC, possibly limiting ability to increase capacity in the near future
- GLE can position itself to build new SWU capacity in the US to serve US utilities (and others)
- With low cost production, GLE could establish an alternative supply source by the mid-2020's



Summary and Outlook

Summary and Outlook



- 1) Game changing unique 3rd generation SILEX laser enrichment technology
- 2) Proven ability to enrich uranium – at an advanced stage of development
- 3) Efficiency and cost advantages with flexibility to decrease production
- 4) Support from US and Australian governments for commercialisation in the US
- 5) GLE restructure gaining traction – underpinned by heavily discounted valuation
- 6) Paducah opportunity – path to market – agreement with DOE nearing finalisation
- 7) Compelling business case – unique opportunity to back game-changing technology

Summary and Outlook



The path forward:

- Finalise the Paducah tails reprocessing opportunity agreement with the DOE
- Complete the GLE restructure and ramp the GLE program up with new investors
- Consider the DOE Loan Guarantee program for potential financing of the Paducah plant
- Maintain watching brief on the SWU market and revive Wilmington plant option if viable

Disclaimer



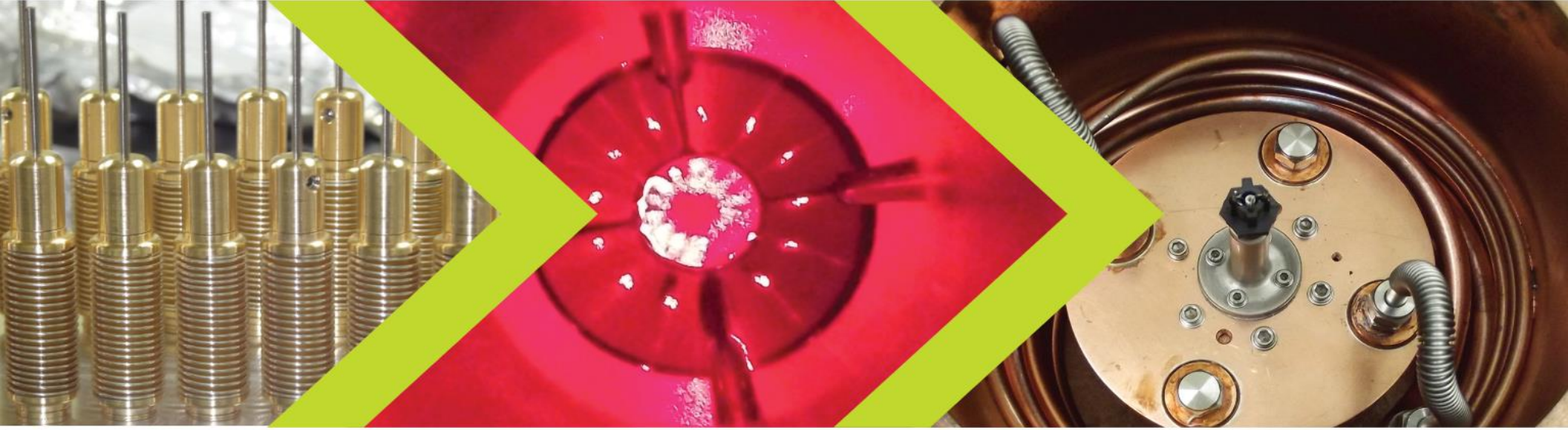
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Thank you

