Alligator Energy

MODERN NUCLEAR IN A CLEAN ENERGY WORLD

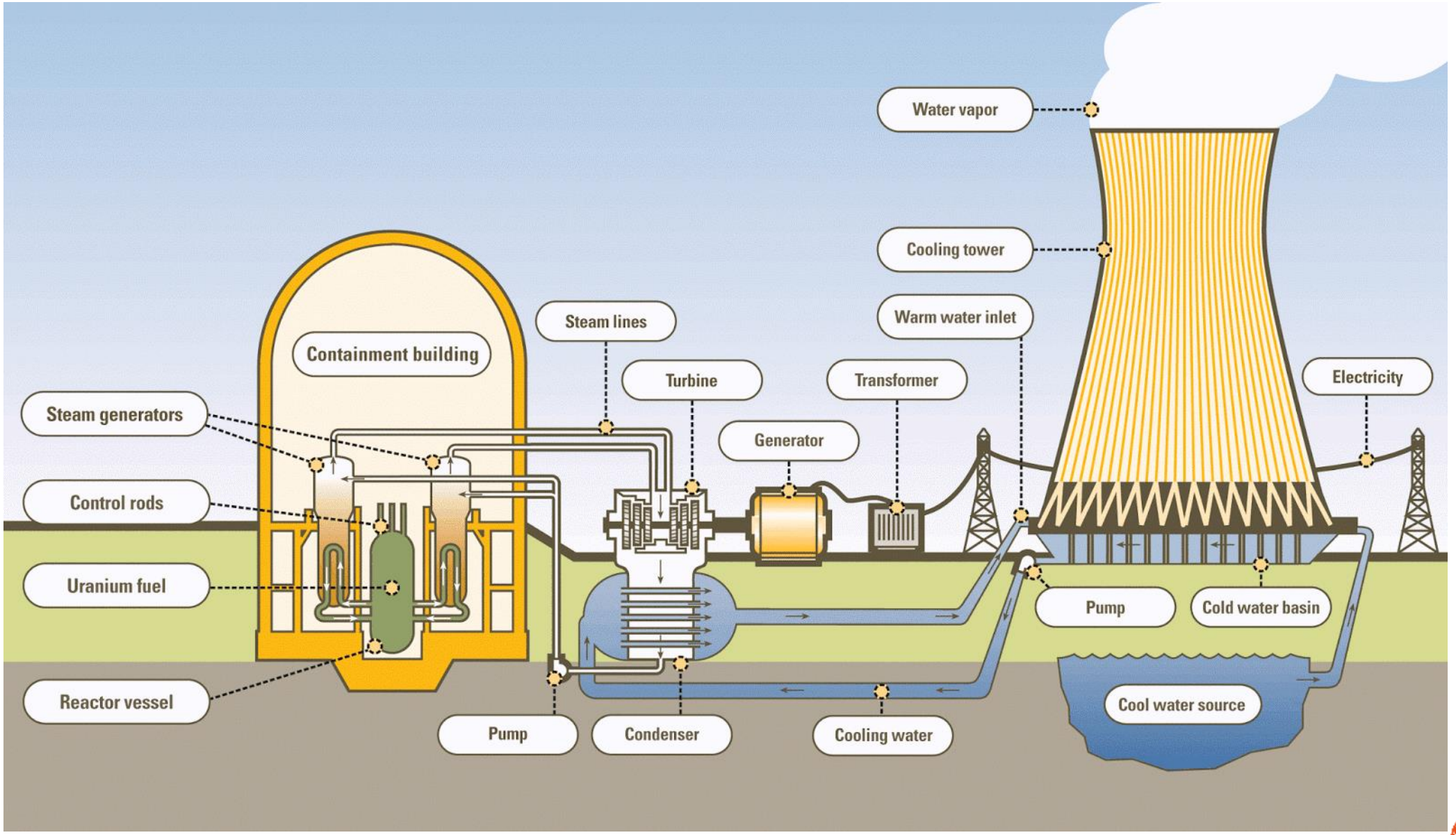
Brisbane Mining Club Presentation

NOVEMBER 2021

Greg Hall – CEO

The Past and Present

Nuclear reactor basics



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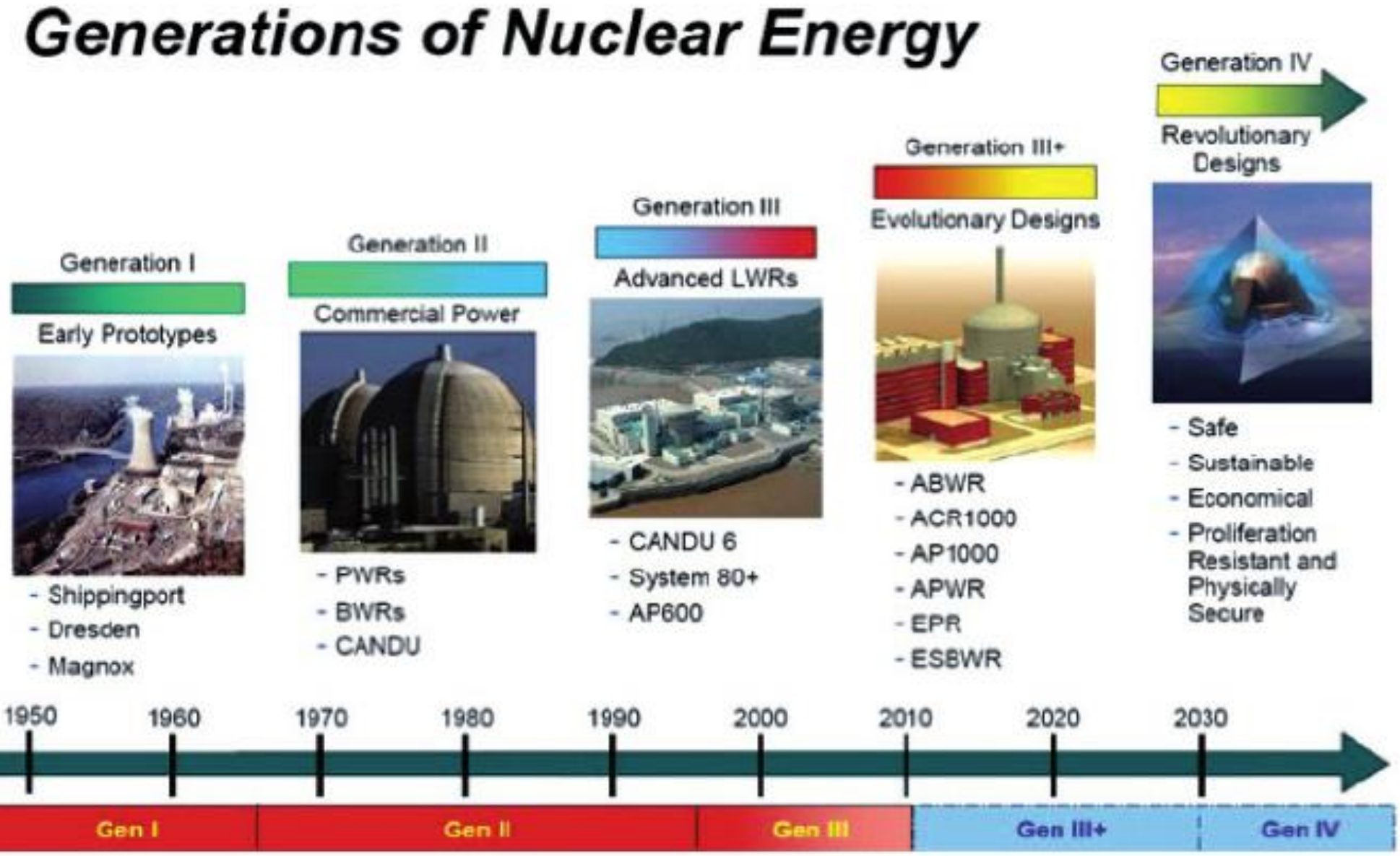
Nuclear reactors – generation to generation (US Dept Eergy)



Generation I nuclear reactors – ~1950 to ~mid 1960

Calder Hall - UK

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Generation II reactors – ~late 1960 to ~1990's

Duke Energy - South Carolina

Fukushima Daiichi nuclear plant

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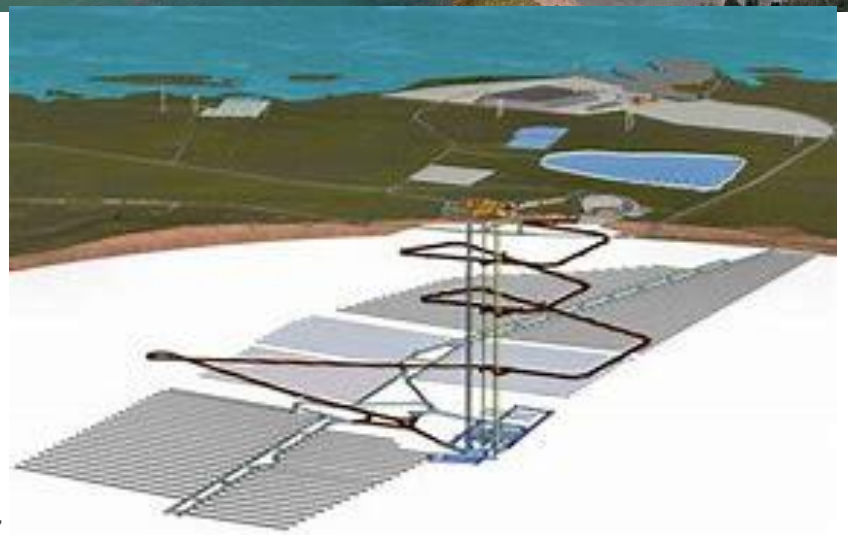
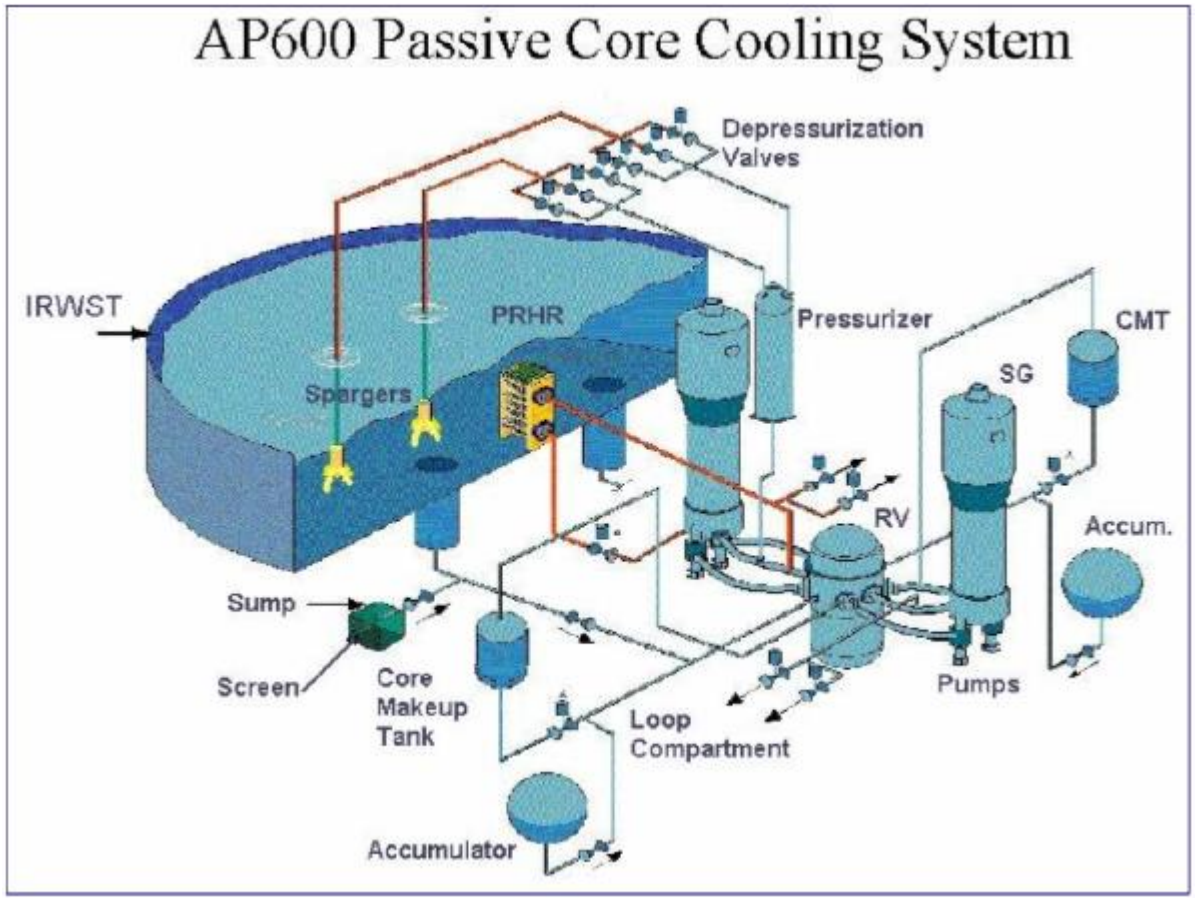
Generation III and III+ reactors – mid 1990's – 2010 – 2030



Olkiluoto Nuclear - Finland



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Evolutionary vs Revolutionary

Small Modular Reactors

Initial designs based on Generation III and III+ technology – but very different layout – others more revolutionary

Power rating up to 300 MW (vs 600 to 1400 MW for large reactors)

Small – can be prefabricated offsite, transported to site – can be smaller than a rail car – construction time and cost reduced

Fuel can last from 2 to 5 years or up to 10 in some cases

Passive cooling systems, fewer mechanical parts, sometimes buried below ground, sometimes totally immersed in below ground pools or heat sinks

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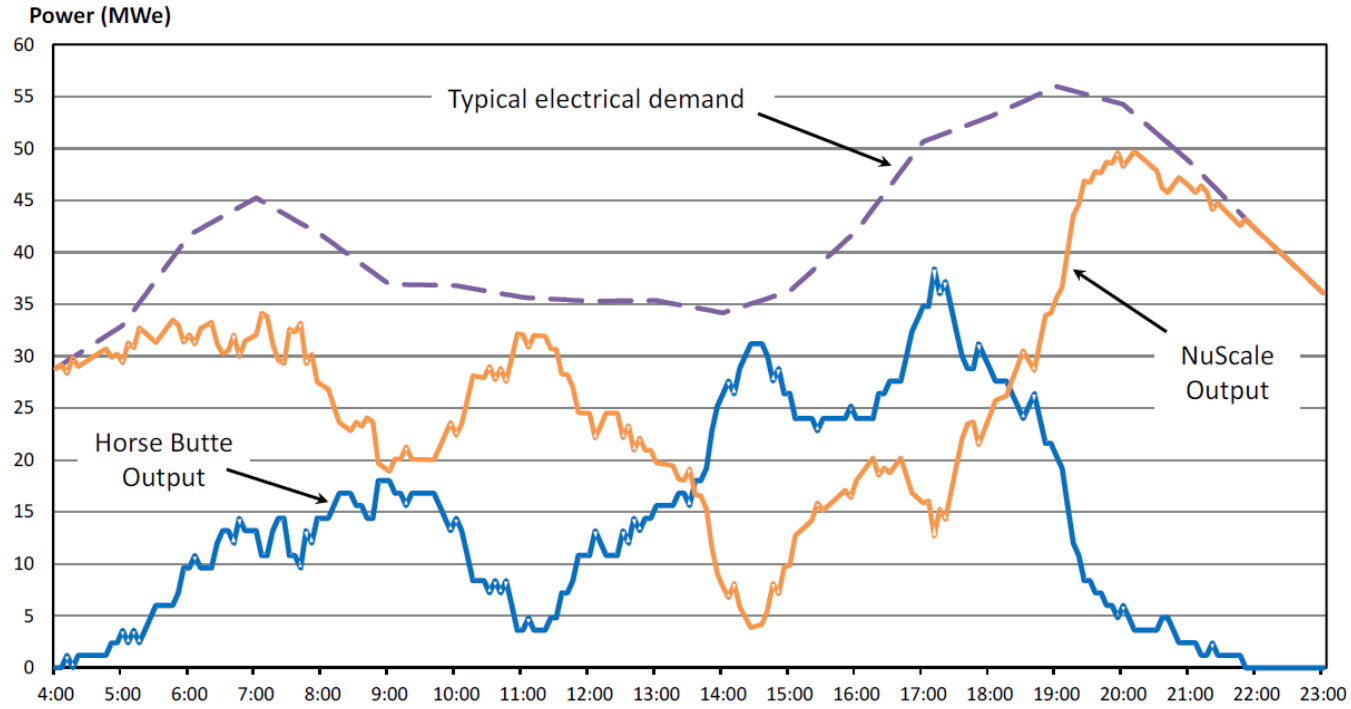
Small Modular Reactors



Modular, ie put in one, two, three or more in a line – can be scaled to meet energy demand

Can be connected to existing grid – ideally sized to slot straight into a previous power plant site which has existing infrastructure

Can power regions or independently supply large sites, eg mines

Many designed to be load following, ie can be integrated with intermittent renewables

Source: NuScale Power – Paper from Proceedings of ICAPP 2015

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Small Modular Reactors

Various designs currently under active development in 14 countries

Most advanced new western technology – NuScale – fully permitted by US NRC last year – final design and planning underway for Idaho site

Some small, evolutionary designs currently in operation

Russia using designs based on nuclear ship units to provide floating power stations

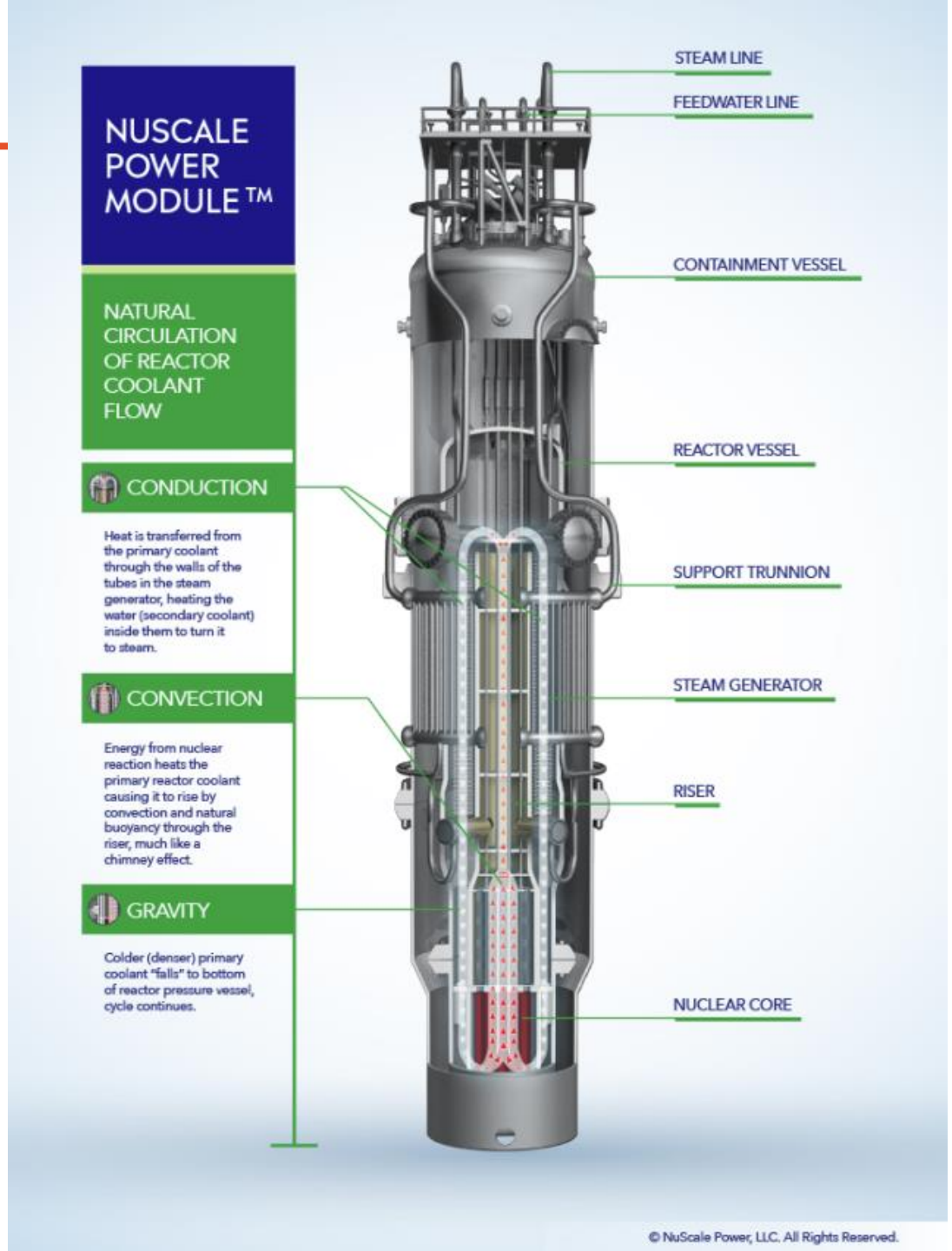
NuScale Power

Schematic of NuScale power module

~23m high, 4.6m wide

77 MWe

Source: NuScale Power



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NuScale Power

Image courtesy NuScale – MCA paper by Dr Ben Heard

NuScale Power Module

Size 77 MWe module, up to 12 unit plant

Pressurised water reactor with solid fuel in PWR fuel assemblies

Design approved by the U.S. NRC in Sept 2020

Utility customer (UAMPS) is proceeding with its Carbon Free Power Project - will see a NuScale power plant constructed at a site located at the Idaho National Laboratory. Expected LCOE of US$58 / MWh from 2030

NuScale's commercialisation program continues with target to being able to deliver NuScale Power Modules to customers beginning in 2027.

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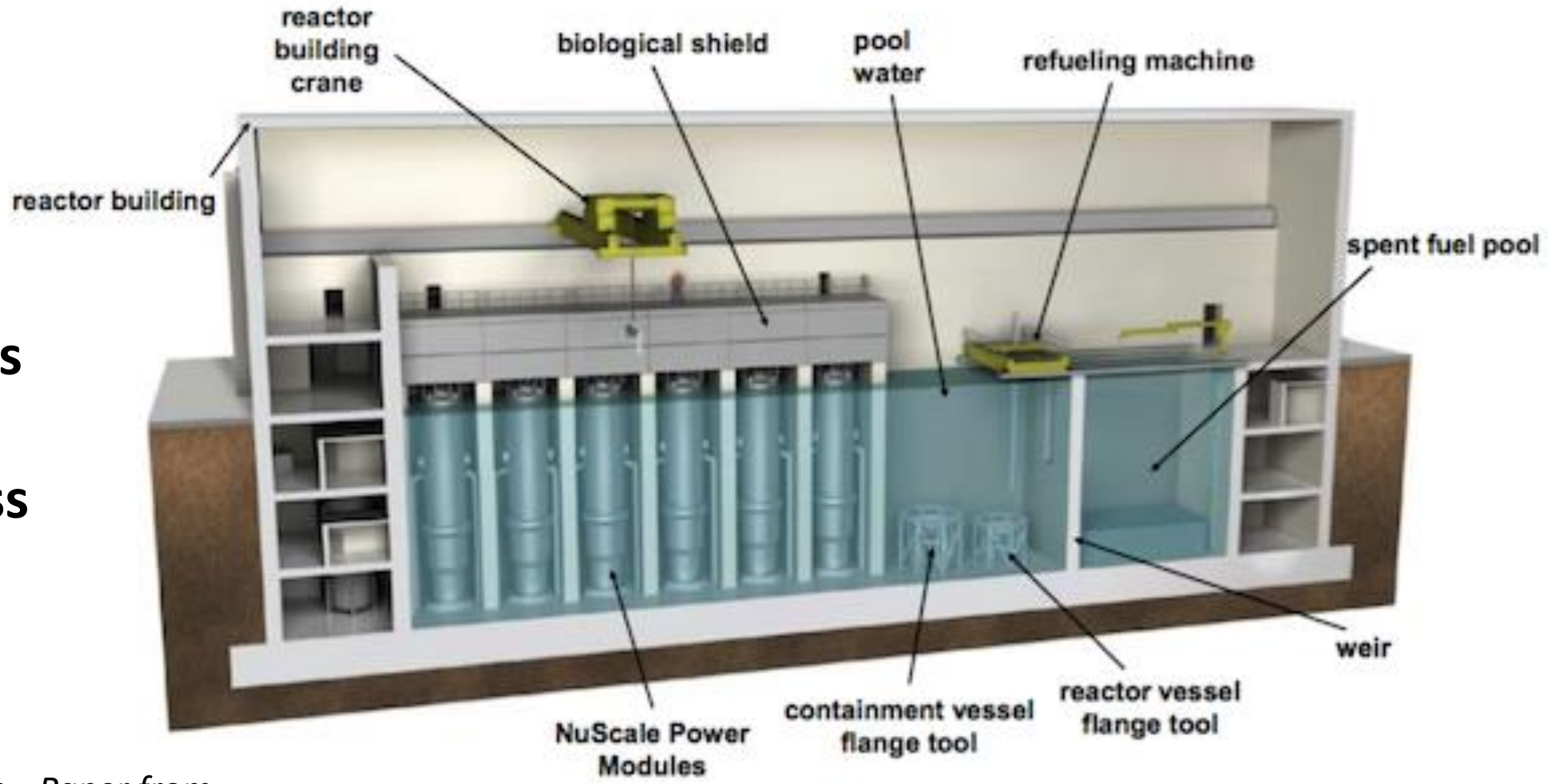
NuScale Power – Plant design

Plant size
approx. 4 acres

924 MWe gross
884 Mwe net



Source: NuScale Power – Paper from Proceedings of ICAPP 2015, MCA paper by Dr Ben Heard

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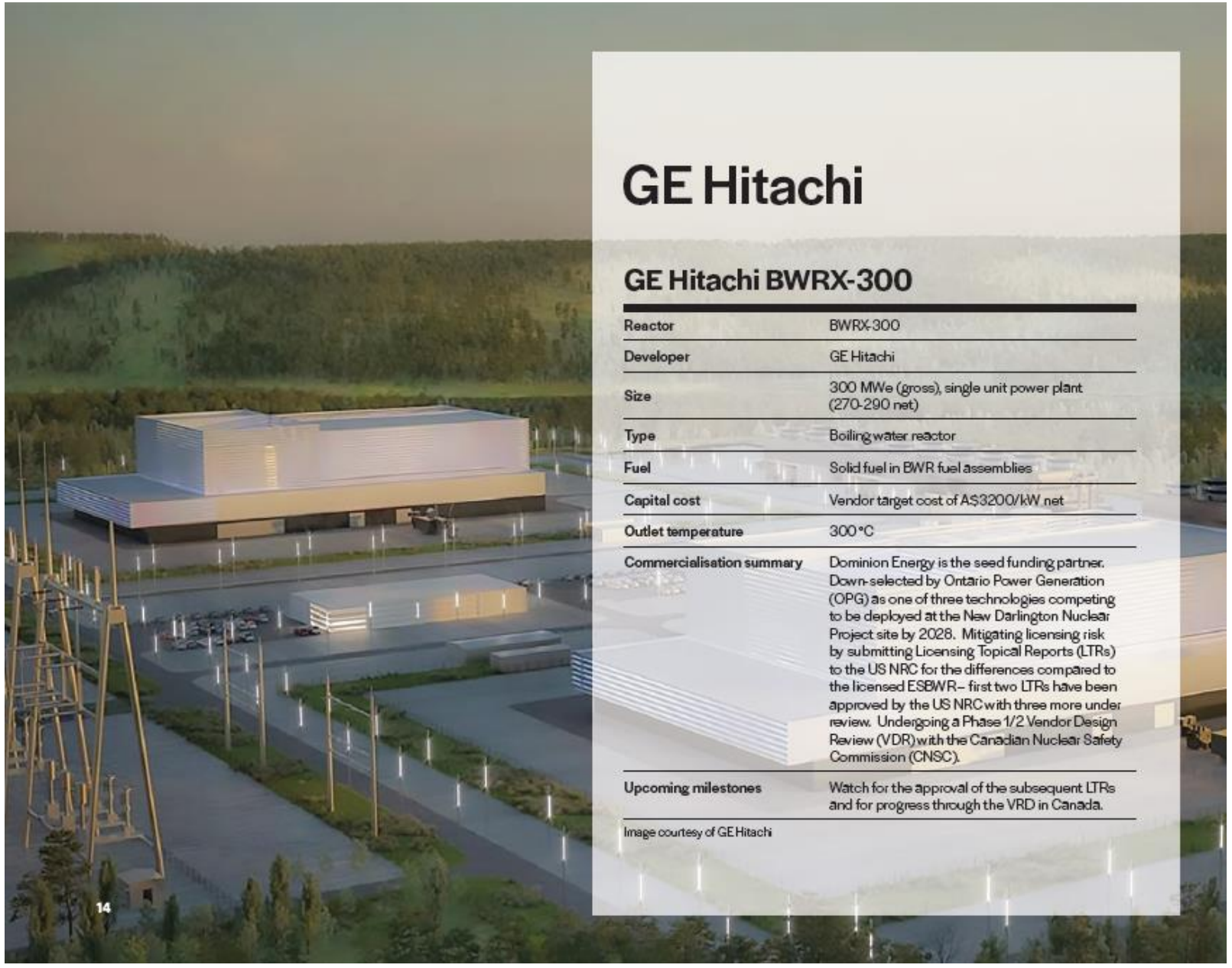
GE Hitachi

Boiling water reactor – 300 MWe

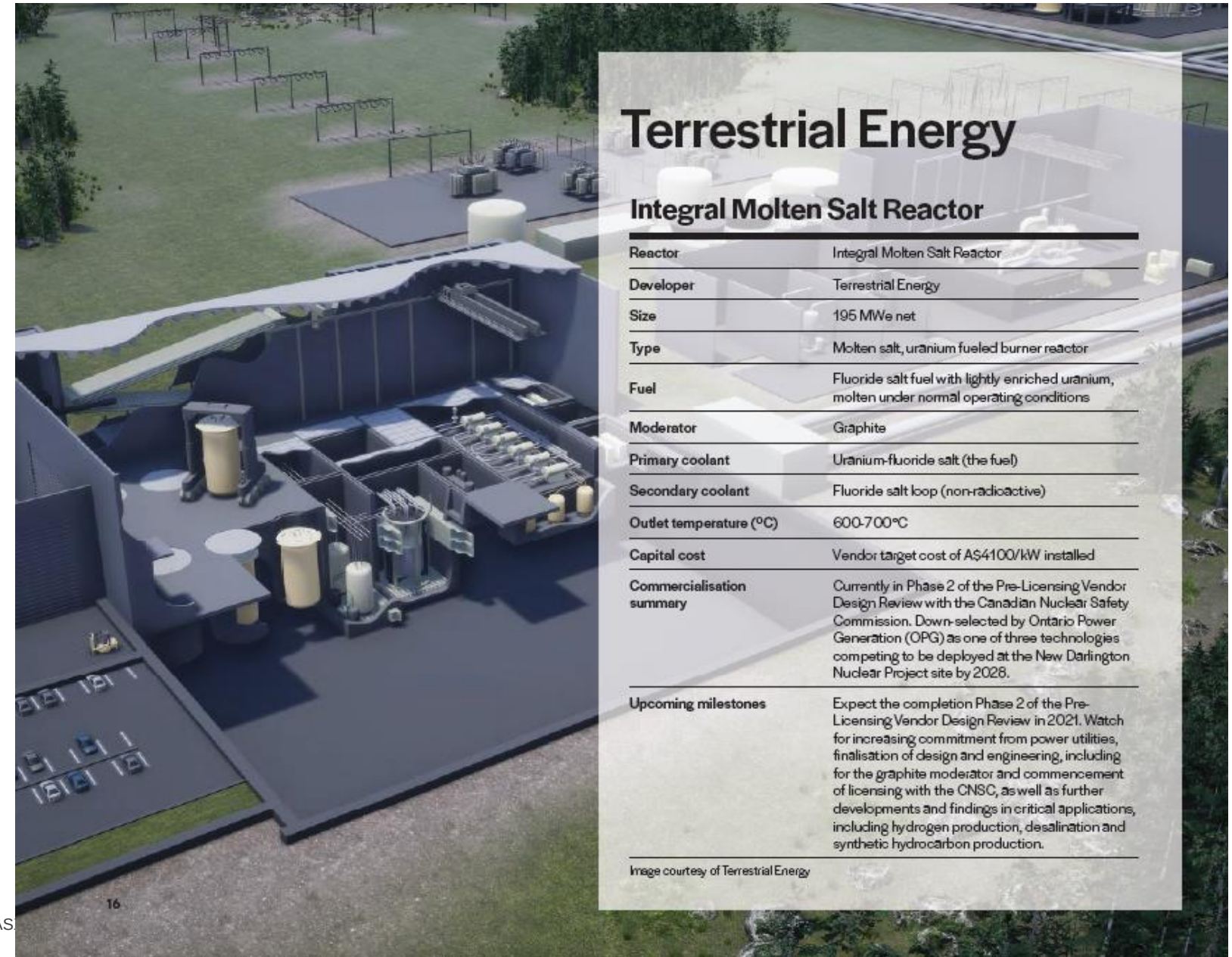
Solid fuel in BWR assemblies

Dominion Energy (US) is seed funding partner Selected by OPG Canada as one of possible new technologies – under pre-approval

Image courtesy GE Hitachi – MCA paper by Dr Ben Heard



Terrestrial Energy



Molten Salt Reactor
195 Mwe

Flouride salt fuel with light enriched uranium, Molten under normal operating conditions

Currently in phase 2 of design review with CNRC

Image courtesy Terrestrial Energy – MCA paper by Dr Ben Heard

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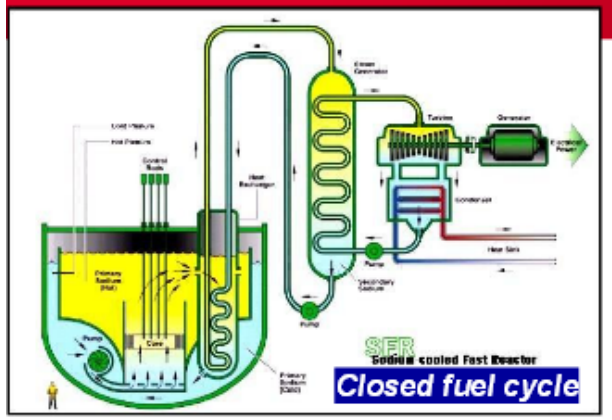
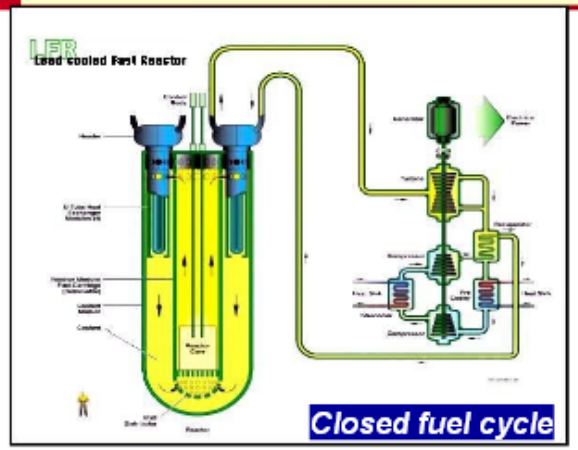
Generation IV large reactors

GEN-IV INTERNATIONAL FORUM: 6 SYSTEMS FOR R&D

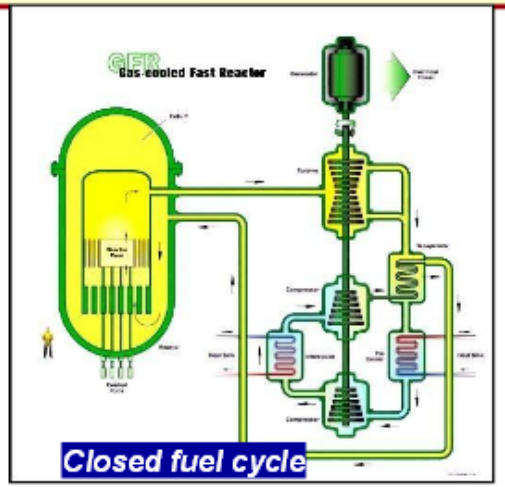
GIF Selection of six Nuclear Systems



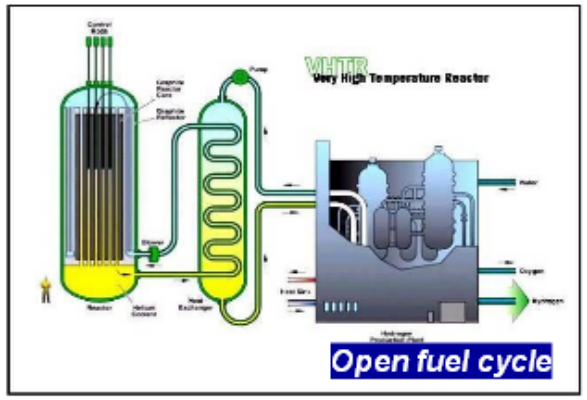
Sodium Fast Reactor



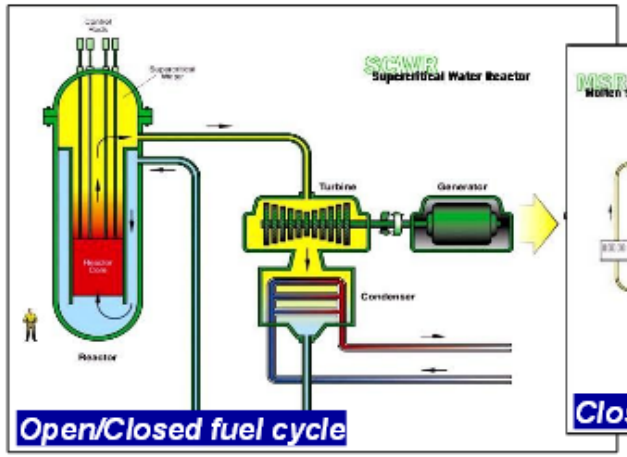
Lead Fast Reactor



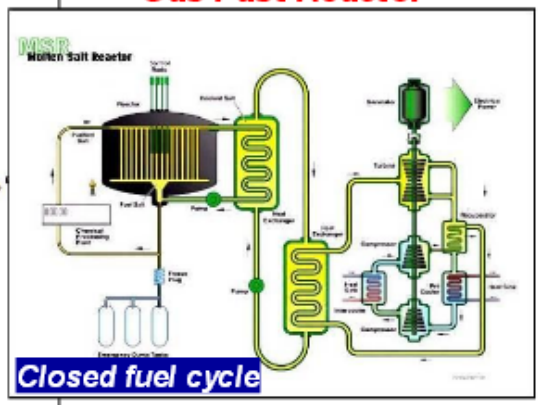
Gas Fast Reactor



Very High Temperature Reactor



Super Critical Water Reactor



Molten Salt Reactor

Recognition of the major potential of fast neutron systems with closed fuel cycle for breeding (fissile re-generation) and waste minimization *(minor actinide burning)*

- Still conceptual design
- International consortium development
- High temperature
- Full passive safety
- Higher fuel burnup and onsite fuel reprocessing
- Support economical hydrogen production
- Some designs decade away – some 2 – 4 decades away

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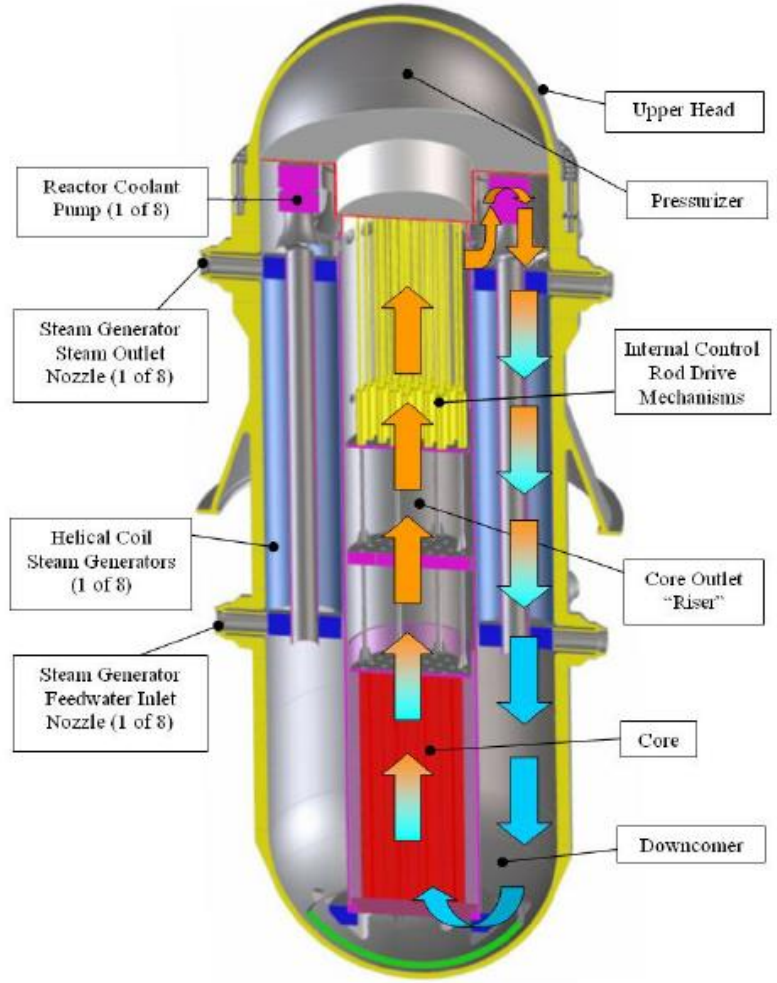
Micro reactors or Nuclear Batteries

Up to 10 MWe
Built elsewhere – buy off shelf or to order
Container size modules – deliver to site
– bury – hookup
Use for 10 years – replace with new

UK design U Battery



Model of IRIS reactor vessel and primary coolant system

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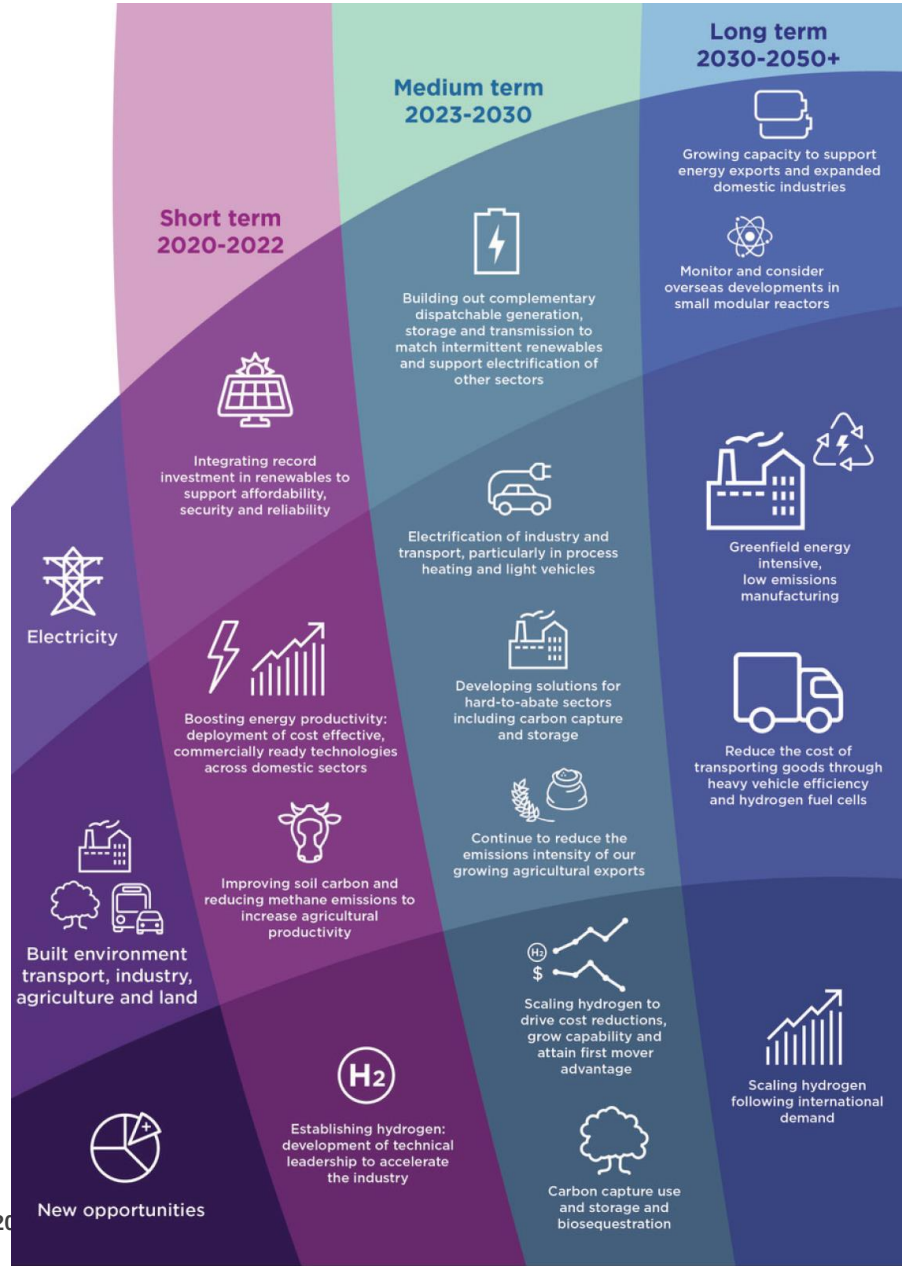
Possibilities for Australia?

Australian Nuclear?



Old plan for 500 MW reactor at Jervis Bay, 69-71

2006 Uranium Mining, Processing and Nuclear Energy Review (UMPNER) - Australian Govt study into nuclear led by Ziggy Switkowski

2020 Technology Investment Roadmap Discussion paper – Low emission technologies - Allows opportunity for SMR evaluation

The de-centralised SMR model likely suits our grid

MCA paper – Small Modular Reactors in the Australian Sense – by Dr Ben Heard

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Australian Nuclear?

Recent commitment to nuclear submarines requires new nuclear legislation and skills for monitoring, maintenance and operation

This will provide the baseline nuclear operator skills and expertise to support a future fleet of civilian SMR's – evidence from skilled nuclear operators in other countries

Speed up the consideration of nuclear??

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What are other countries doing?

US	**- tax credits to maintain existing nuclear fleet - strategic uranium reserve - Democrat administration supports new modern nuclear as clean energy**
Japan	**- new PM to fast track nuclear restarts - maintain nuclear to meet clean energy targets**
Poland	**- signs MoU with NuScale for SMR**
Finland	**- commits to maintain nuclear to support clean energy targets**
France	**- reversing policy to reduce nuclear – needed to meet clean energy targets**
UK	**- supports new nuclear including Rolls Royce SMR**
China	**- plans to build 150 reactors in next 15 years – currently building 3 to 5 per year – currently has 2,990 coal fired generators – plan is to replace these with clean energy by 2060**
EU	**- 10 countries in nuclear alliance – support nuclear as clean energy**

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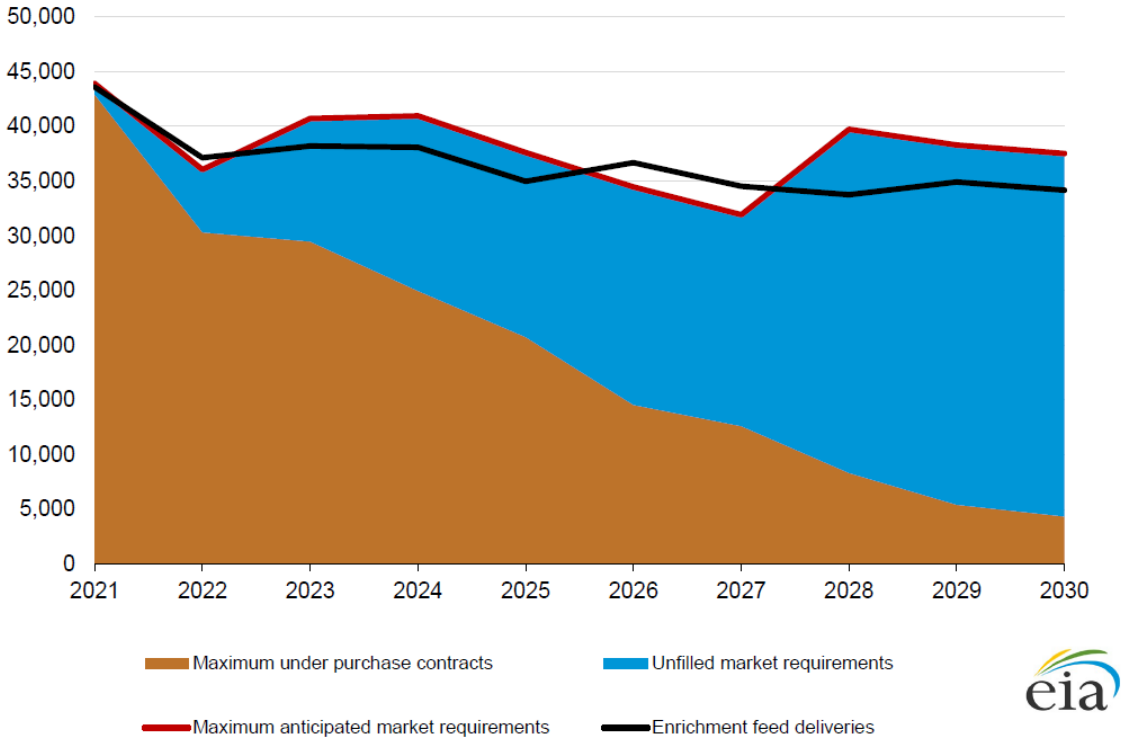
Uranium Market

Uranium Market

- High level of uncovered uranium demand within nuclear utilities
  - ~50% uncovered in US from 2025
  - ~50% uncovered in EU from 2028
- Still a significant pipeline of new reactor construction with SMR's entering the fray also – **~10% increase in nuclear power in 5 years**
- 55 large reactors under construction globally (18 in China)*
- 100's more planned and proposed*
- Across 9 countries there are**
  - 4 SMR's operating
  - 3 SMR's under construction
  - 14 SMR's well developed nearing deployment
- Significant policy changes within USA and EU which now define nuclear as a low carbon electricity source
- Significant fund physical uranium buying, with additions from Producers and developers

Max anticipated uranium requirements of US nuclear power reactors, 2021-2030



Source: U.S. Energy Information Administration, Form EIA-858, *Uranium Marketing Annual Survey* (2020)

* Source: WNA, World Nuclear Power Reactors (May 2021)
** WNA, Small Nuclear Reactors (Oct 2020)

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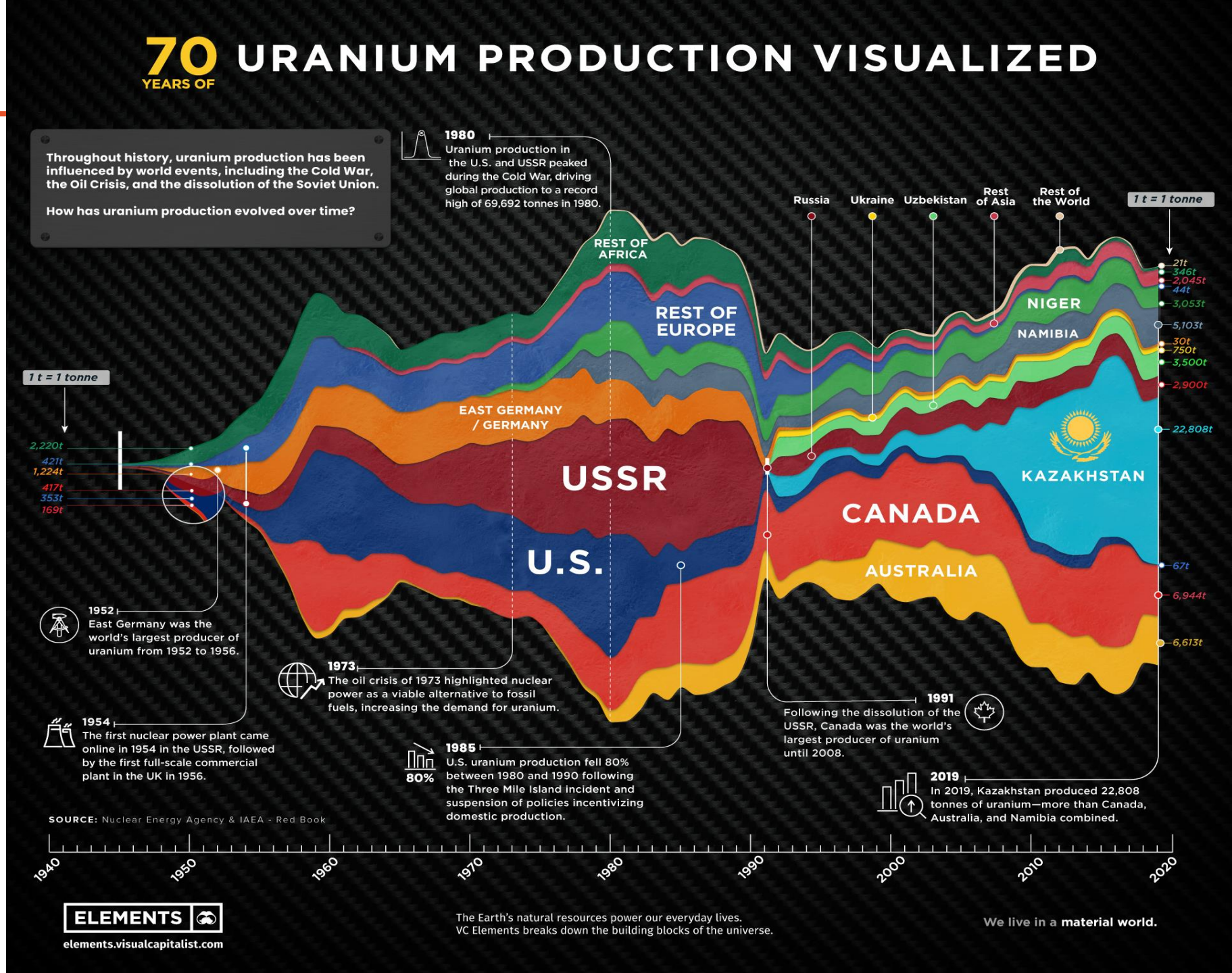
Uranium Market

Shifting uranium supply based on global events, supply and demand, changing political scenarios, accidents

Contraction points show effects of significant events

Expansion points related to strong nuclear growth and uranium prices



Source: Nuclear Energy Agency, IAEA Red Book, Visual Capitalist

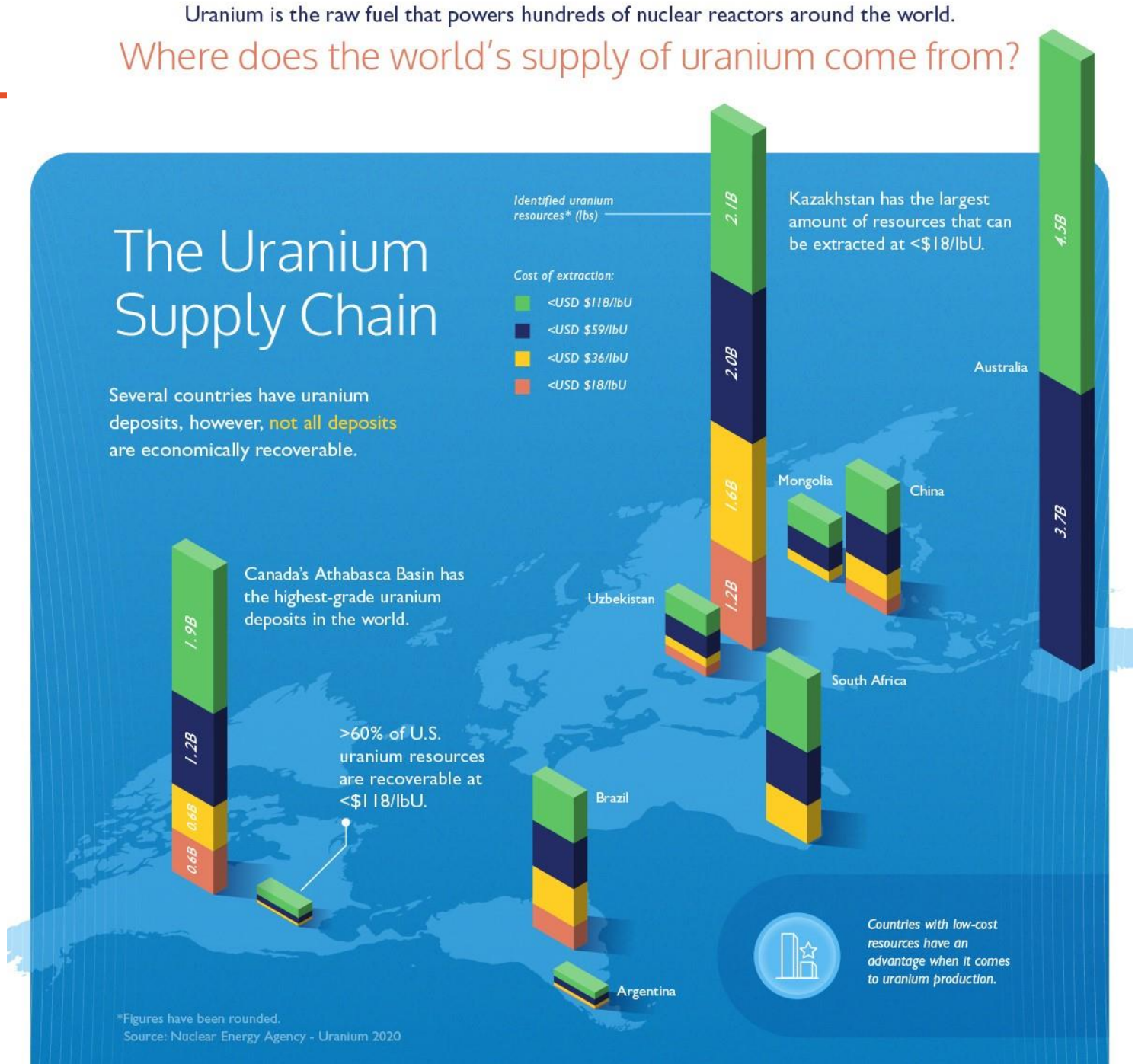
Uranium Market

Australia has a single large uranium resource (Olympic Dam) being mined predominantly for copper with uranium as a co- or by-product. But other projects becoming important for utility buying spread for risk.

Kazakhstan has large resource in multiple deposits that have a relatively low extraction cost.

Canada has a long history and the highest grade resources globally, with new discoveries, and relatively long duration approval.

Namibia has a long uranium mining history with significant resources and operating experience.



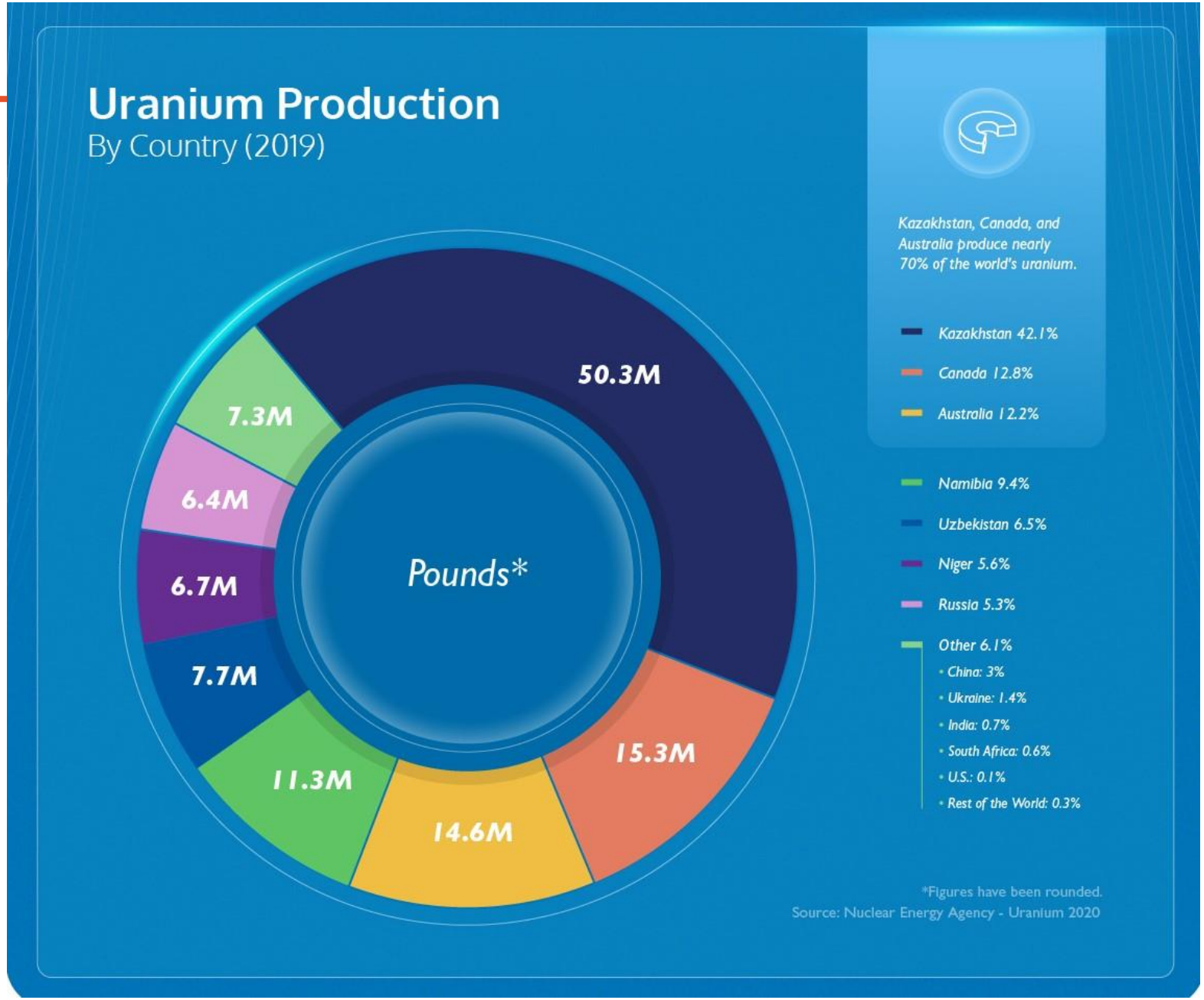
Uranium Market

2019 global uranium production shown

2020 price and Covid related shutdowns impacted this, particularly Canadian production

Many uranium projects on care and maintenance are being readied for future production

Global long term demand, even on the existing reactor fleet, will require future mine production from new sources



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Alligator Energy – Corporate Strategy

Uranium focussed project development and exploration group with clear pathways for approval and development.

- Advancing Samphire Uranium Project through resource enhancement, evaluation, approvals and pre-development into production
- Identify and test highly prospective exploration targets in its ARUP & Big Lake Uranium Assets
- Value add to its Ni Co Cu Piedmont Project in northern Italy through exploring strategic partnership investment
- Continue to actively evaluate acquisition opportunities of further advanced uranium assets

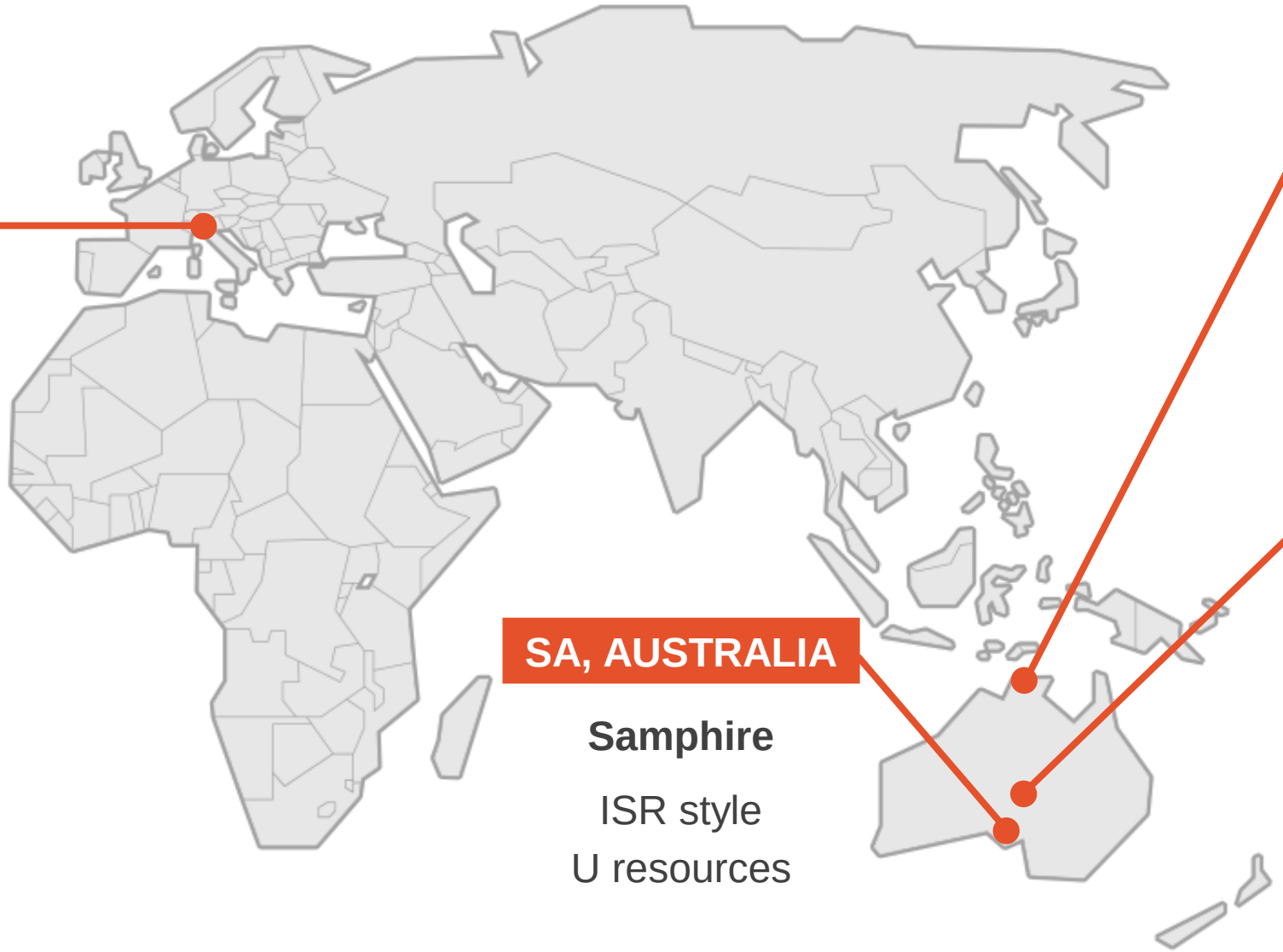
Targeting multi-jurisdictional resource and exploration projects

- *Alligator has formed a strategic relationship with **Traxys North America**, the U.S. arm of global commodities trading group Traxys*
- *Traxys uranium team will provide uranium marketing services for future uranium production, long term offtake contracting, project development financing and assist in uranium project acquisition opportunities[1]**

Combined now with Traxys, Alligator has one of the most experienced uranium Management, Advisory and Board teams on the ASX.

* Refer to numbered references on slide at end of presentation

Alligator Energy – Project Locations



ITALY

Piedmont NW

Ni-Co-Cu-Au-PGEs

NT, AUSTRALIA

Alligator Rivers (ARUP)

High Grade U

SA, AUSTRALIA

Big Lake (Cooper Basin)

ISR style U

SA, AUSTRALIA

Samphire

ISR style U resources

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Alligator Energy – Portfolio Status

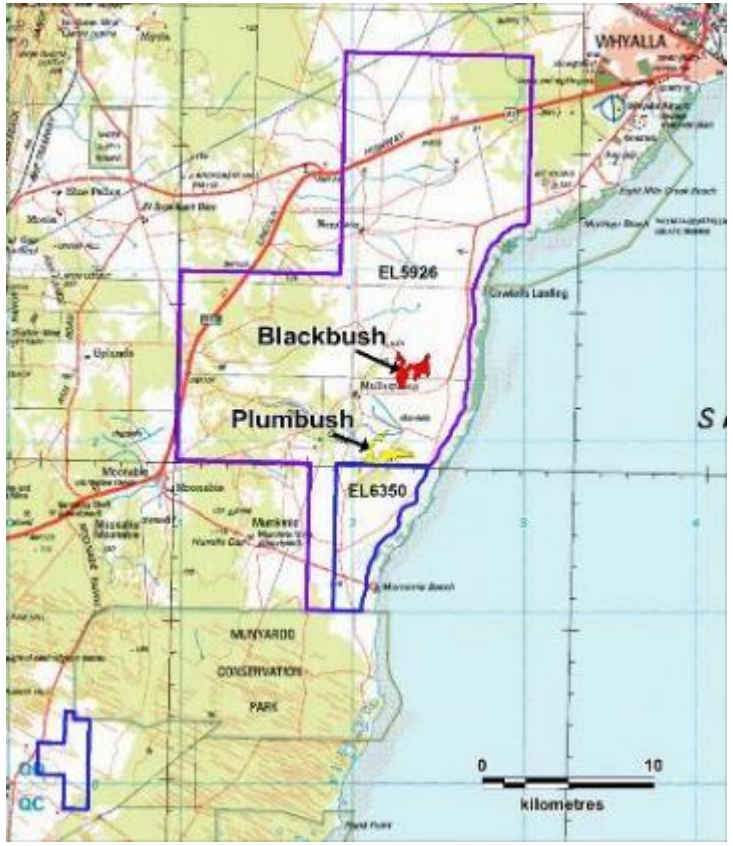
Project	Highlights
Samphire Uranium Project, South Australia	• Contains ***47Mlb inferred uranium resources*** in two deposits. *[2] • JORC2012 compliant ***Blackbush Resource*** is 64.5 million tonnes at a grade of 230ppm eU3O8 containing ***32.7Mlb eU3O8*** at a 100ppm cut-off grade**, with a higher-grade core amenable to ISR extraction**. [2] • JORC2004 ***Plumbush Resource 21.8 million tonnes at grade of 292ppm eU3O8, containing 13.9Mlb eU3O8*** of mineralisation at a 100ppm cut-off grade. [2] • Desktop study confirmed amenability to ISR mining and supported planned upcoming 2021 drilling program, ANSTO updated met testing, targeting Scoping Study by Q1 2022. • **Significant upside through potential resource enhancement, mineralisation extension, further discoveries, improved modern extraction and recovery techniques, commence early studies for approvals.** [3]
Alligator Rivers Uranium Province (ARUP), Northern Territory	• Contains ***multiple uranium targets*** in a well-defined ***high grade regional uranium bearing zone***, which includes the ***Caramal uranium resource 6.5 Mlbs U3O8 @ 0.31% (3,100ppm)***[4] • Prospective Nabarlek North tenements have recently been granted giving Alligator in ***excess of 1,150km2 of active tenure*** in Australia's premier Uranium district [4] adjacent to the high grade U40 Uranium Copper Gold Prospect • **Preparations underway for IP survey and ground gravity followed by drilling in 2022**
Big Lake Uranium Prospect, South Australia	• EM survey conducted ***targeting potential paleochannels for new low cost ISR style deposits*** in the Cooper Basin • **Pending outcome of geophysics, drilling planned for H1 2022.** [5]
Piedmont Project, Northern Italy	• Contains multiple ***historic Ni Co Cu mines*** • Ground truthing and sampling has ***confirmed the high-grade Ni tenor of the region*** • 17 occurrences of nickel > 0.5% in a region of interest extending some ***30kms in length, by 2 to 3kms*** wide. [6] • **Interested potential strategic partner visiting site Oct 2021, prep for geophysics program underway**

*Refer ASX release 11 June 2020 - https://www.asx.com.au/asxpdf/20200611/pdf/44jk4s3r8rgc10.pdf including the Cautionary Statement in relation to the 2004 JORC complaint Resource

Refer to numbered references on slide at end of presentation (Slide 26)

Samphire Uranium Project, SA

- Acquisition of Samphire Project completed Oct 2020 – 100% AGE owned
- Desktop Study was undertaken to review historical information, potential development routes and plan future work
- Modern ground magnetics and passive seismic trial undertaken
- Drill program commencing November 2021 for Blackbush resource infill drilling, resource extension testing, and new core samples for metallurgical and recovery testing
- Acquisition of adjacent tenement to south of Plumbush deposit contains historic drilling and uranium intercepts. [7]
- Acquisition of adjacent tenement to the south of the Plumbush deposit contains historic drilling and uranium intercepts.



Resource*[2]	Project	Status	JORC code	Location	Size Mlb
Blackbush	Samphire	Inferred	2012	SA	32.7
Plumbush	Samphire	Inferred	2004	SA	13.9

2021 / 2022 Targets

1. **Drilling to enhance and improve confidence of Blackbush resource**
2. **Undertake updated ANSTO testing for uranium recovery**
3. **Scoping Study during Q1 2022 – further drilling and baseline studies commence**

*Refer ASX release 11 June 2020 - https://www.asx.com.au/asxpdf/20200611/pdf/44jk4s3r8rgc10.pdf including the Cautionary Statement in relation to the 2004 JORC complaint Resource
Refer to numbered references on slide at end of presentation (Slide 26)

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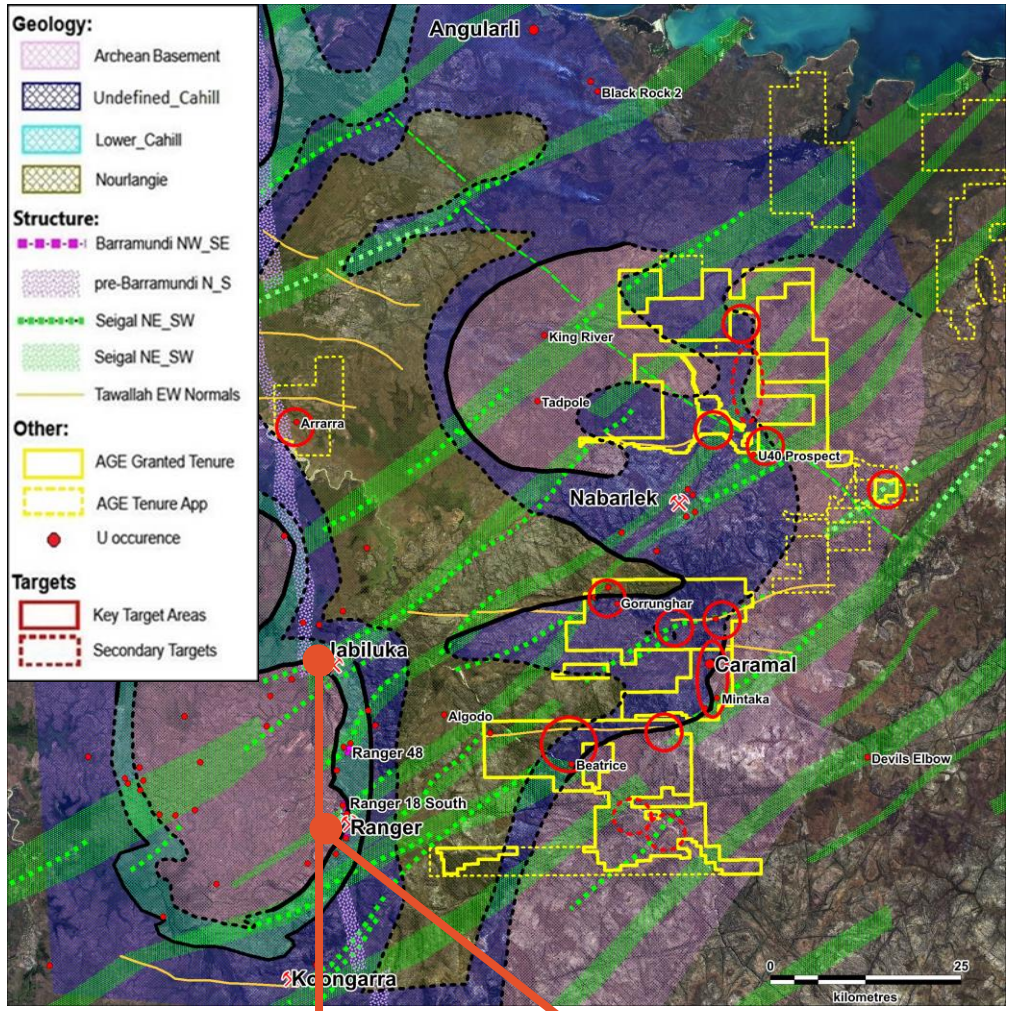
Alligator Rivers Uranium Province (ARUP), NT

- AGE's ARUP region (100% owned) in West Arnhem Land contains multiple uranium targets in a well-defined regional uranium bearing zone including the Caramal Resource **6.5 Mlbs U3O8 @ 0.31% (3,100ppm)**[4]
- Recent comprehensive re-evaluation of the regional and local geology - enhanced understanding of stratigraphic and structural relationships
- Broad zone highlighted Beatrice Project, through Tin Camp Creek and into the Nabarlek North project area as high priority for further work.
  - Along this trend, 8 areas for immediate assessment were highlighted
  - 6 addition target areas within the Alligator licences
- Agreement completed with Traditional Owners over the highly prospective Nabarlek North tenement package to **increase AGE's exploration footprint by 80%**
  - 11 km to the north of the historic Nabarlek uranium mine (**24 Mlbs @ 1.84% U3O8**), and 200 metres from the high grade U40 prospect (**includes 6.3m at 7.23% (72,300ppm) U3O8**)[8]
  - Reduced thickness of cover sequence – more effective exploration
- Onground prep work underway for IP survey, ground gravity, to be followed by drilling in 2022

ARUP – underlying geology – actual and interpreted



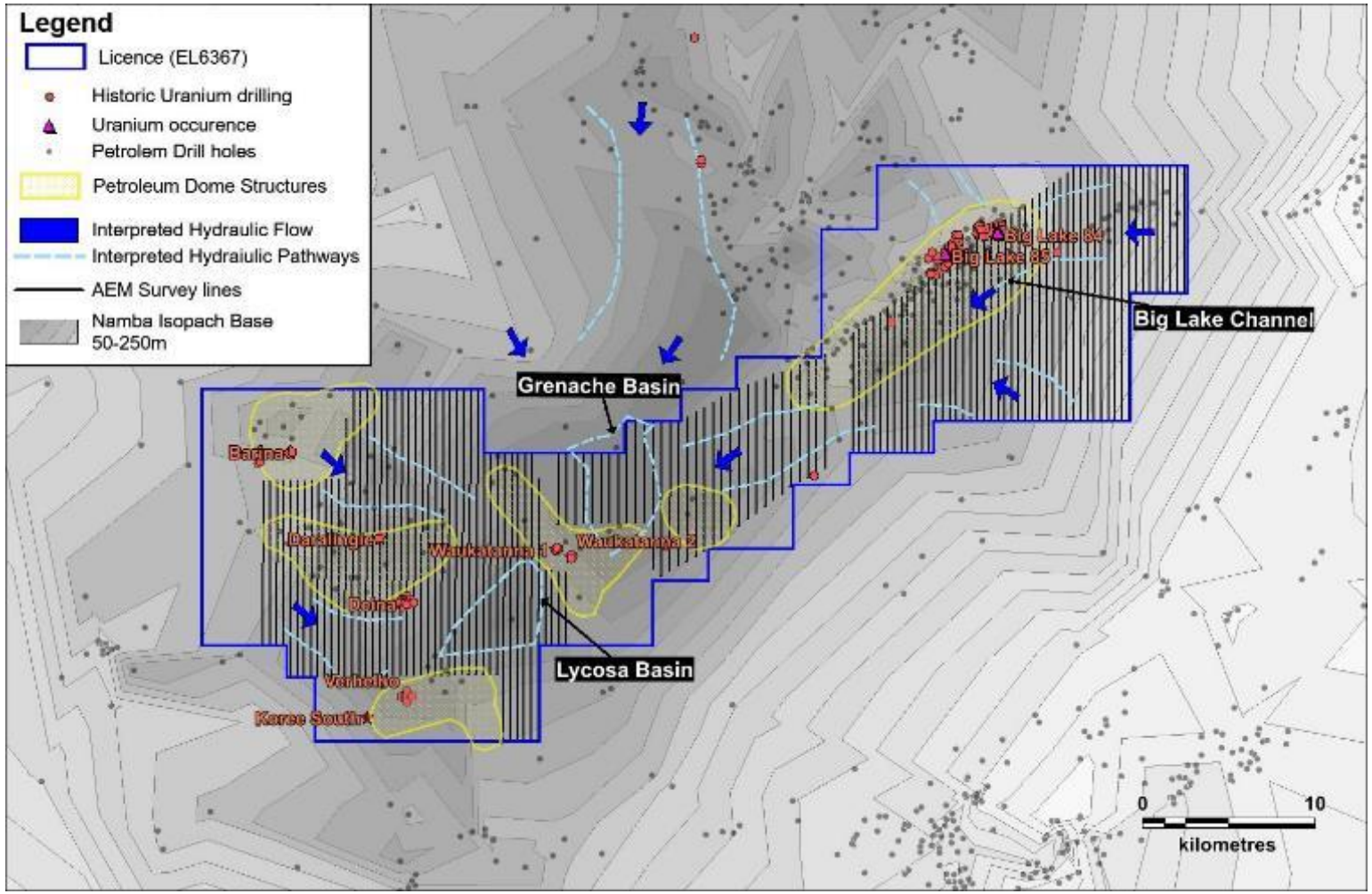
In close proximity to key Uranium deposits **JABILUKA** **RANGER**

Big Lake Uranium - Airborne EM Survey

Alligator can acquire 100% of the Big Lake Uranium Project in Copper Basin, exploring for ISR uranium.

Airborne EM survey completed May 2021

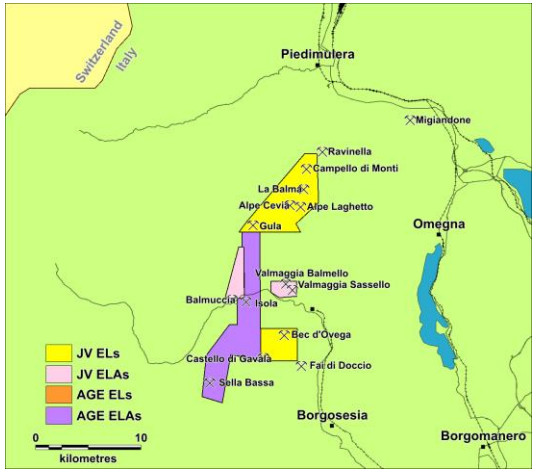
- Shallow sandstone hosted ISR style setting is amenable to rapid and low-cost exploration and exploitation.
- The BLU region demonstrates geological analogies to existing world class ISR fields including Kazakhstan, Texas and Wyoming
- Results currently being evaluated with a view to interpreting any paleochannel systems which may have accumulated uranium in sediments
- Subject to this evaluation, an initial drilling program is planned for H1 2022

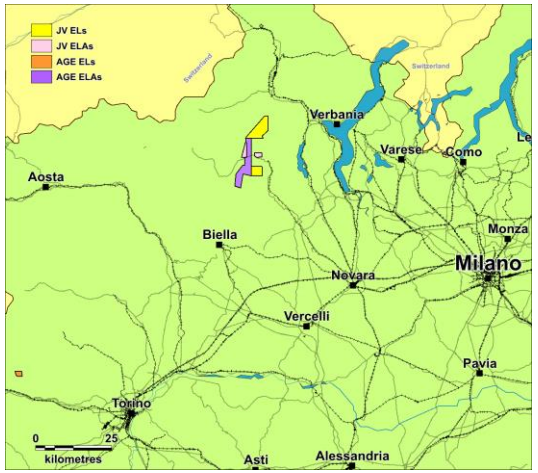


Base of Namba formation Isopach with proposed AEM survey lines over interpreted Hydraulic pathways, Petroleum Dome structures and Historic drilling

Piedmont Ni Co Cu Au Project, northern Italy

- Region of interest extends some 30kms in length, by 2 to 3kms wide, and contains multiple historic Ni Co Cu mines – AGE farming into 3 licenses, holds 100% of 3 others
- Ground truthing and sampling has confirmed the high-grade Ni Co tenor of the region
- **AGE is continuing engagement and discussions with potential strategic partners to advance next exploration steps – one party visiting site October 2021**
- Assay results from two-stage 2018 work include:
  - Initial results: range of significant metal grades ranging **0.19 to 2.48% Ni, 0.02 to 0.17% Co and 0.07 to 0.98% Cu** [6A]
  - Second results release: range of significant metal grades **0.49 to 2.24% Ni, 0.02 to 0.19% Co, 0.12 to 6.38% Cu and 0.6 to 60.8g/t Au** [6B]
- Drilling permits approved within Alpe Laghetto licence and on-ground prep work for ground EM and drone magnetics underway, ready for next field season 2022
- Very supportive EU policies for EV and critical minerals within Europe
- **Alligator has joined the European Battery Alliance, which has the aim of establishing a domestic battery value chain within Europe**





Detailed technical review by a world-renowned nickel/cobalt geologist with extensive experience in this style of mineralisation has confirmed the potential for large scale Ni and Co occurrences.

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Cautionary Statement

Plumbush Inferred Mineral Resource - Cautionary Statement

In relation to the Plumbush Inferred Mineral Resource Estimate (stated in compliance with JORC 2004) of 21.8 million tonnes at grade of 292ppm eU3O8, containing 6,300t (13.9Mlbs) of mineralisation at a 100ppm eU3O8 cut-off grade the following cautionary statement is made:

- the Exploration Results have not been reported in accordance with the JORC Code 2012;
- a Competent Person has not done sufficient work to disclose the Exploration Results in accordance with the JORC Code 2012;
- it is possible that following further evaluation and/or exploration work that the confidence in the prior reported Exploration Results may be reduced when reported under the JORC Code 2012;
- nothing has come to the attention of the acquirer that causes it to question the accuracy or reliability of the former owner's Exploration Results; but
- the acquirer has not independently validated the former owner's Exploration Results and therefore is not to be regarded as reporting, adopting or endorsing those results.

The Plumbush Inferred Mineral Resource is JORC 2004 compliant and therefore may not conform to the requirements in the JORC Code 2012. The Inferred Mineral Resource was previously announced by Uranium SA (ASX:USA) on the 8th April, 2011. All work to establish this Inferred Mineral Resource was completed by the vendor of the Samphire Project. It is the acquirer's view that the reliability of the Exploration Results are of a good standard. The drilling methods, drilling density, sampling, and downhole geophysical surveys are documented and appear to be of reasonable quality. Additionally, the geological setting and mineralisation style correlate with what is reported at the neighboring Blackbush deposit (JORC 2012 compliant).

The Inferred Mineral Resource was based on drilling data from 43 rotary mud holes, on roughly 200metre centers. All holes were gamma probed using a suitably calibrated tool. No studies were completed on mineralogy or bulk density, with assumptions being made from the geologically similar neighboring JORC 2012 compliant Blackbush resource.

No further recent Exploration Results or data has been identified that would be relevant to understanding the Exploration Results.

An initial assessment suggests that to restate the Plumbush Inferred Mineral Resource as 2012 JORC compliant, landholder access agreements would need to be established, a small core drill hole program would likely be required which would include some geochemical, mineralogical and density sampling. The acquirer has not established a timeframe or budget for further work at Plumbush and it should be noted that this is expected to have a lower priority than the Blackbush deposit. Any short-term funding requirements will occur using internal financial resources.

The Competent Person's Statement for this release covers this Cautionary Statement.

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ASX References and Statements

Reference	Date	Announcement	Link
1.	10 May 2021	Alligator Partners with Global Uranium Group Traxys	2924-02372956-2A1297261 (markitdigital.com)
2	11 June 2020	Alligator to Acquire 47 Mlbs uranium resource	2924-02243486-2A1230115 (markitdigital.com) - including the Cautionary Statement in relation to the 2004 JORC complaint Resource
3.	16 December 2020	Samphire Uranium Project – Desk Top Study findings	2924-02322873-2A1270492 (markitdigital.com)
4.	19 April 2012	Alligator announces Caramal resource of 6.5 Mlb U308 @ 0.31%	https://www.asx.com.au/asxpdf/20120419/pdf/425pwnq4grbc7v.pdf
5.	7 May 2021	Alligator commences airborne EM at Big Lake	2924-02372482-2A1297000 (markitdigital.com)
6.	9 July 2019	Rediscovered Ni Co province in Italy	2019 07 09 Market Update - Re-discovered Ni Co Cu province (markitdigital.com)
6A.	26 July 2018	Alligator's first Piedmont assays confirm significant mineralisation with grades up to 2.5% Ni and 0.17% Co	https://www.asx.com.au/asxpdf/20180726/pdf/43wsdn8f3tq4l1.pdf
6B.	14 September 2018	Arnhem Land drilling update and further high grade Ni Co Cu Au assays at Alligator's Piedmont project	https://www.asx.com.au/asxpdf/20180914/pdf/43ybd4j8dtcpy6.pdf
7.	18 May 2021	Alligator Acquires exploration licence adjacent to Samphire	2924-02375584-2A1298615 (markitdigital.com)
8.	26 February 2020	Nabarlek North tenements to proceed to grant	2924-02206728-2A1208851 (markitdigital.com)
9.	8 April 2011	UraniumSA resource inventory announcement (Blackbush and Plumbush)	https://www.asx.com.au/asxpdf/20110414/pdf/41y1y07swzhvf1.pdf

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Competent Person's Statement – Uranium

Information in this report is based on current and historic Exploration Results compiled by Mr Andrew Vigar who is a Fellow of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Vigar is a non executive director of Alligator Energy Limited, and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Vigar consents to the inclusion in this release of the matters based on his information in the form and context in which it appears.

Competent Person's Statement – Nickel Cobalt

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Alligator Energy

Greg Hall *CEO*

+61 (0) 7 3839 3904

gh@alligatorenergy.com.au

www.alligatorenergy.com.au

ASX: AGE