

# Why Nuclear Energy Is Making A Comeback – And How Investors Can Profit From It

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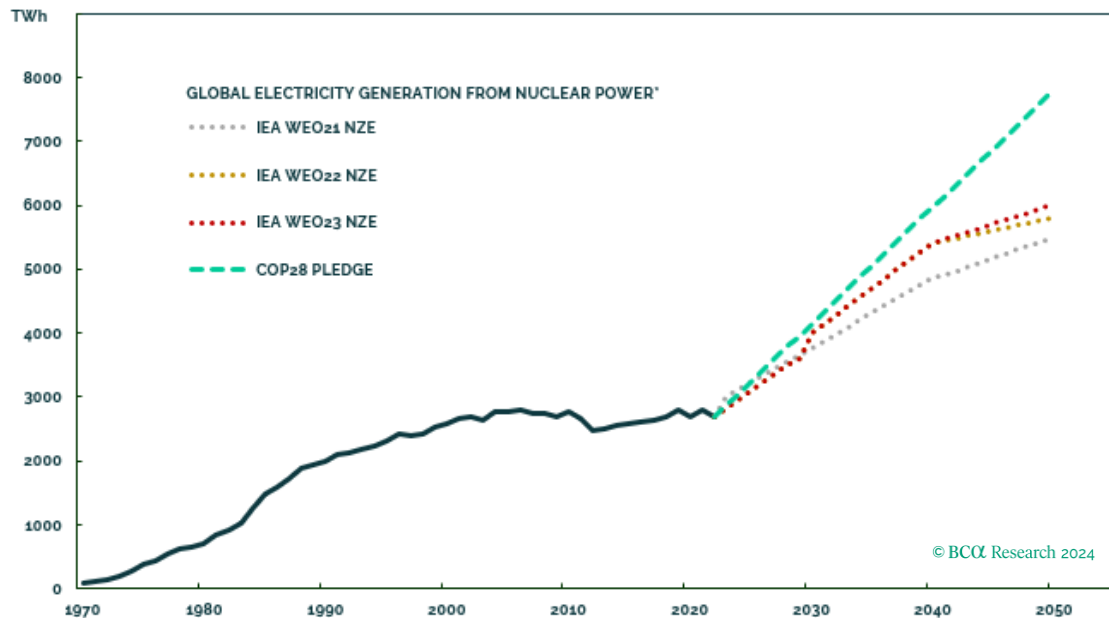
## | Today, We Discuss:

- Why investors can no longer ignore nuclear energy
- How does the rise of AI support nuclear energy?
- US nuclear is decaying, dominance is fading. So what?
- The coming bull market in uranium. Why now is the time to buy?
- How can investors implement practical trades to benefit from the story that has not become consensus yet?

# Why Investors Can No Longer Ignore Nuclear Energy

# Reset Of Energy Security & Sovereignty

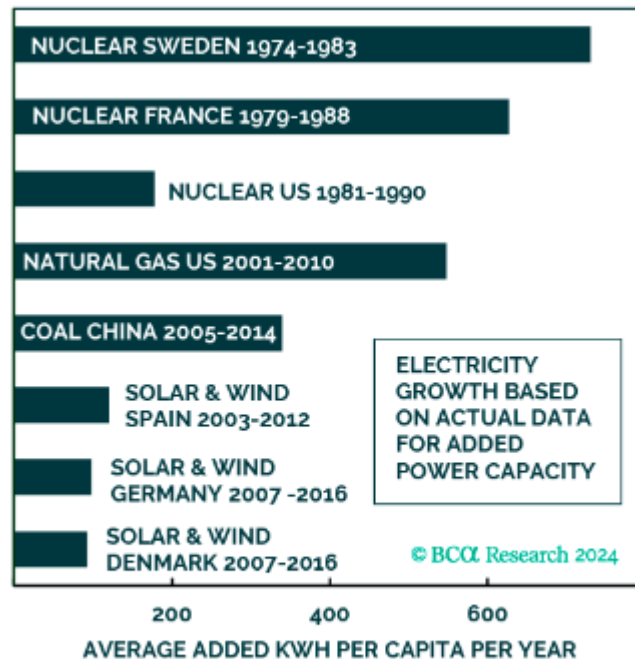
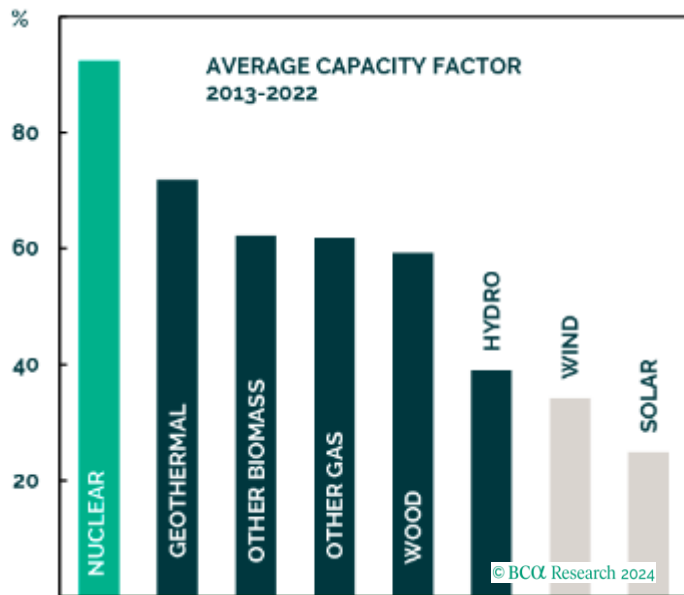
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\*SOURCE: INTERNATIONAL ENERGY AGENCY WORLD ECONOMIC OUTLOOK

# Benefits Of Nuclear Energy: All About That Base

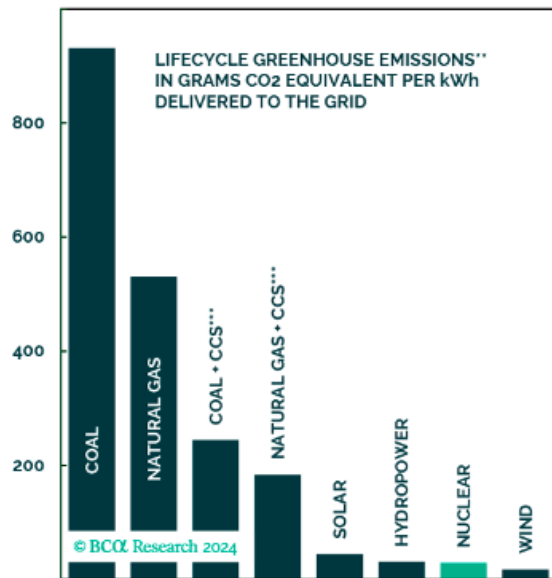
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SOURCE: US ENERGY INFORMATION ADMINISTRATION (EIA)  
NOTE: CAPACITY FACTOR BASED ON HISTORICAL RECORD FOR BEST 10-YEAR PERIOD.

# It Is Also Safer, Less Resource Intensive

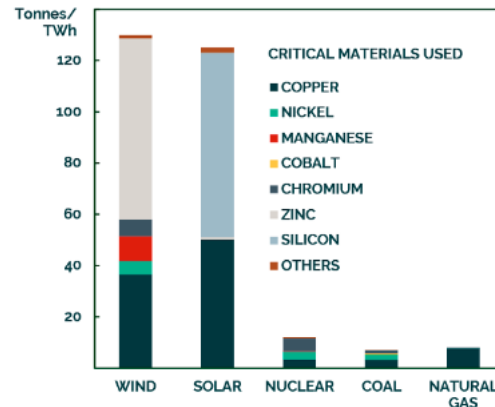
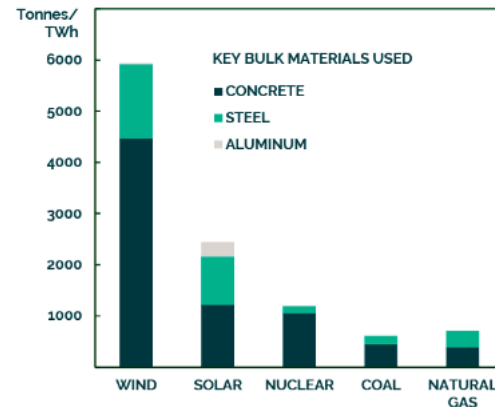
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\* SOURCE: YOUNG & RUBICAM, POLL CONDUCTED FROM NOV 10-24, 2021

\*\* AVERAGE OF ESTIMATES FROM IPCC, NREL, BFE, AND UN ECONOMIC COMMISSION FOR EUROPE LIFECYCLE ASSESSMENT

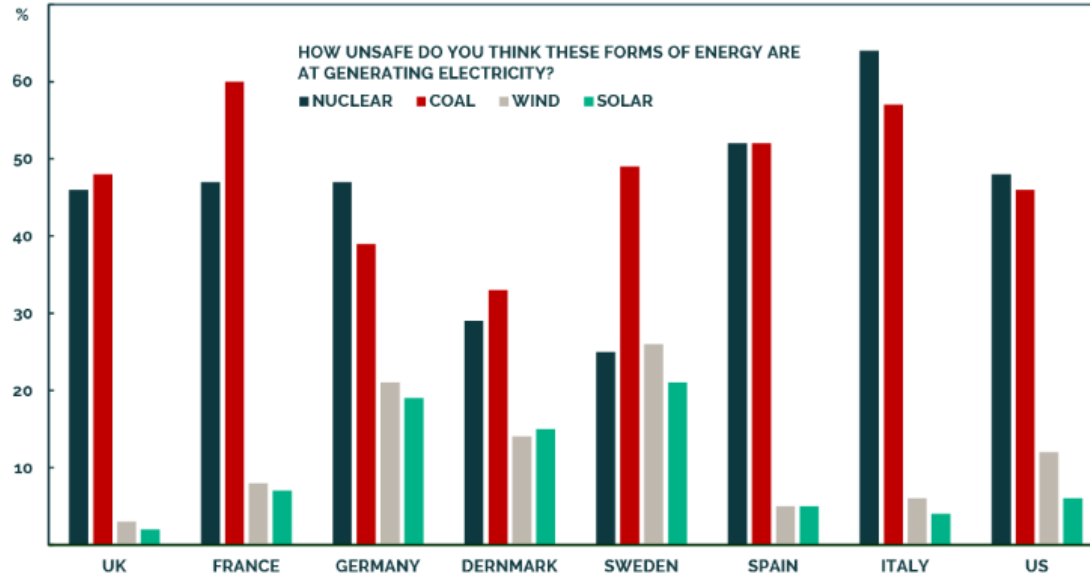
\*\*\* CARBON CAPTURE & STORAGE



SOURCE: BP STATISTICAL ENERGY OUTLOOK © BCX Research 2024

# Though Still Poorly Understood, Perception Will Turn

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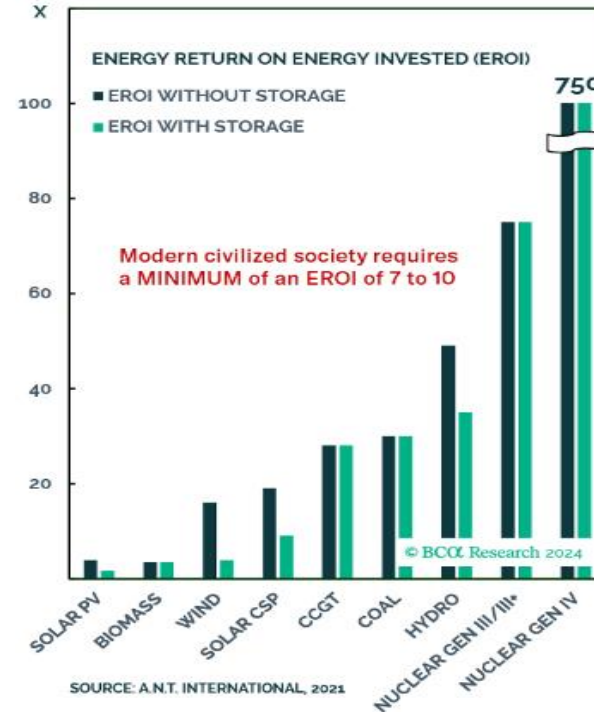
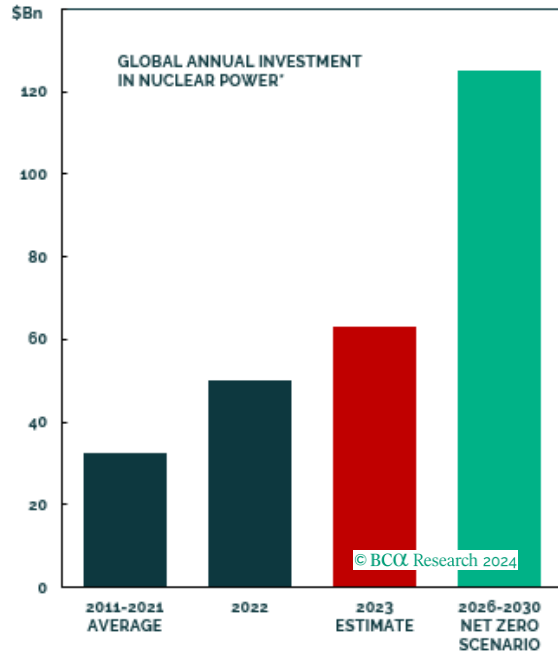


SOURCE: YOUNG, POLL CONDUCTED FROM NOV 10-24, 2021.

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# Investment Will Target Higher Returns

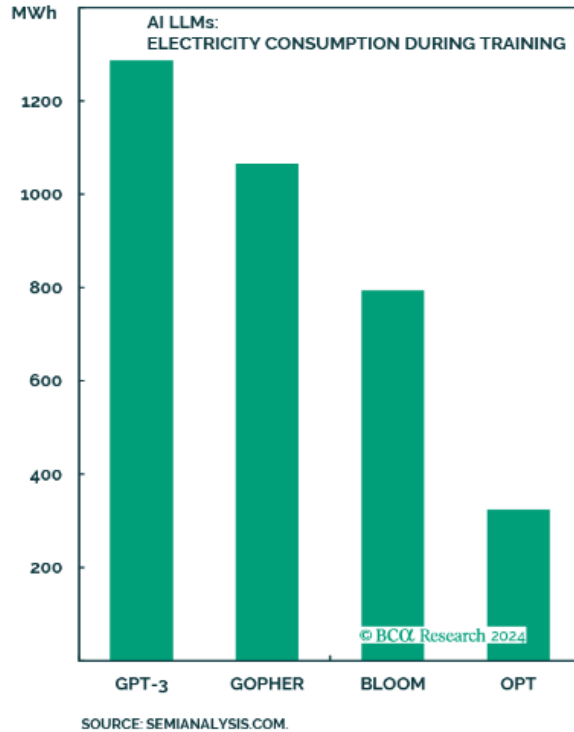
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# How Does The Rise Of AI Support Nuclear Energy?

# GAI Requires A Lot Of “Always On” Energy

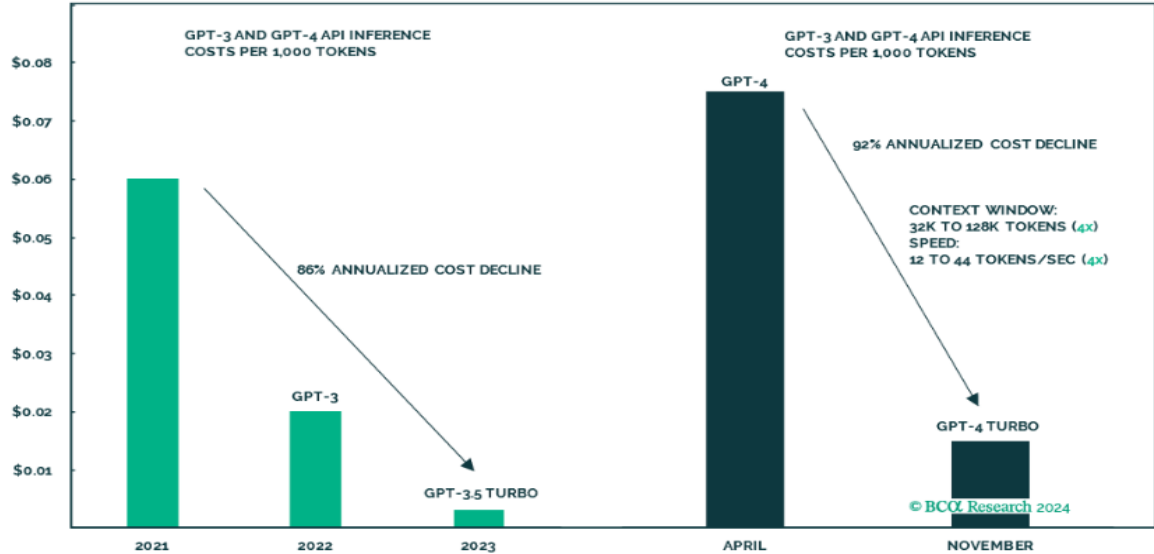


TASK	INFERENCE ENERGY (KWh)	
	MEAN	STD
Text Classification	0.002	0.001
Extractive Qa	0.003	0.001
Masked Language Modeling	0.003	0.001
Token Classification	0.004	0.002
Image Classification	0.007	0.001
Object Detection	0.038	0.02
Text Generation	0.047	0.03
Summarization	0.049	0.01
Image Captioning	0.063	0.02
Image Generation	2.907	3.31

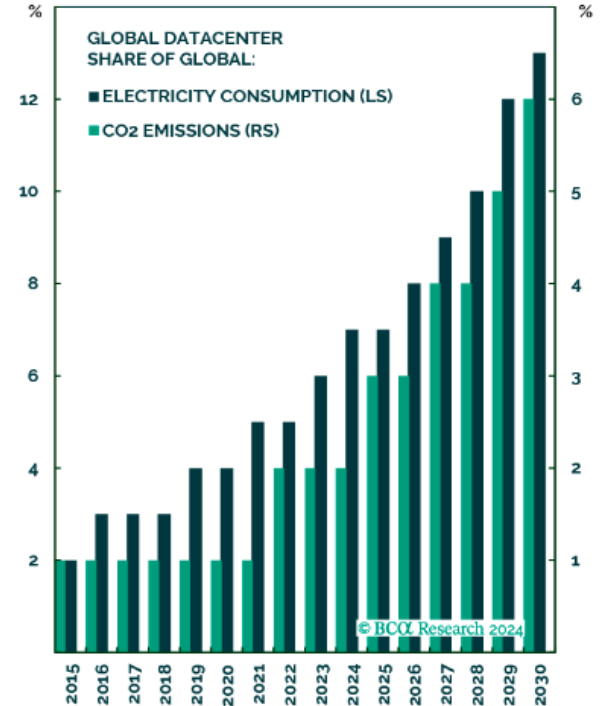
SOURCE: LUCCIONI, A, JERNITE, Y AND STRUBELL, E. 2023. POWER HUNGRY PROCESSINGS: WATTS DRIVING THE COST OF AI DEVELOPMENT?. SEE HERE FOR MORE: <https://arxiv.org/pdf/2311.16863>

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# Falling Inference Costs = More Energy Demand



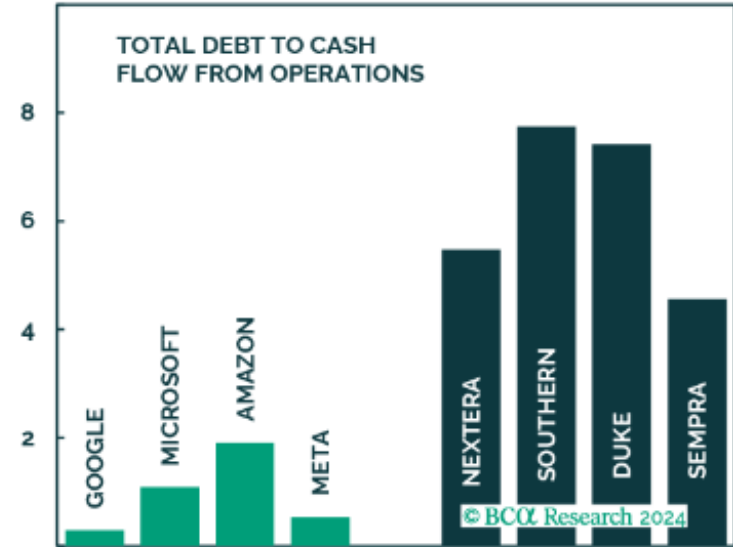
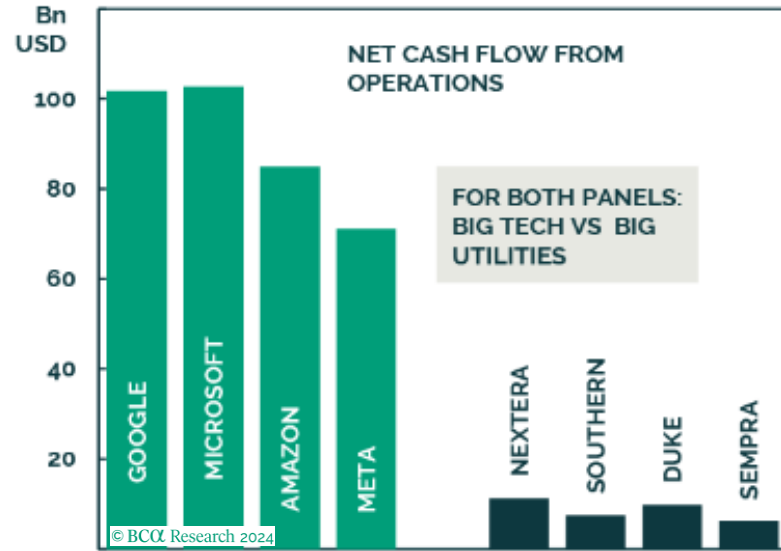
SOURCE: ARK INVESTMENT MANAGEMENT LLC, 2024. BIG IDEAS 2024 REPORT. [HTTPS://WWW.ARK-INVEST.COM/BIG-IDEAS-2024](https://www.ark-invest.com/big-ideas-2024)  
NOTE: THIS ARK ANALYSIS IS BASED ON A RANGE OF DATA SOURCES, INCLUDING PATEL AND KOSTOVIC 2023, AND ARK INVESTMENT MANAGEMENT LLC 2023, WHICH ARE AVAILABLE UPON REQUEST.



SOURCE: HUAWEI TECHNOLOGIES, ON GLOBAL ELECTRICITY USAGE OF COMMUNICATION TECHNOLOGY: TRENDS TO 2023.

# Utilities Alone Cannot Finance AI's Energy Needs

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## Google orders small modular nuclear reactors for its data centres

Tech group signs deal with Kairos Power to build up to 7 small facilities to meet its energy needs



A Google data centre in Germany. Tech companies are increasingly interested in nuclear as a medium-term solution to providing low-carbon electricity © Alex Kraus/Bloomberg

## Microsoft in deal for Three Mile Island nuclear power to meet AI demand

Energy source enjoying renaissance as world looks to slash emissions and feed rapidly growing need



The Three Mile Island restart of Unit 1 will provide power to Microsoft under a 20-year deal. The plant is set to come online in 2028 © AP

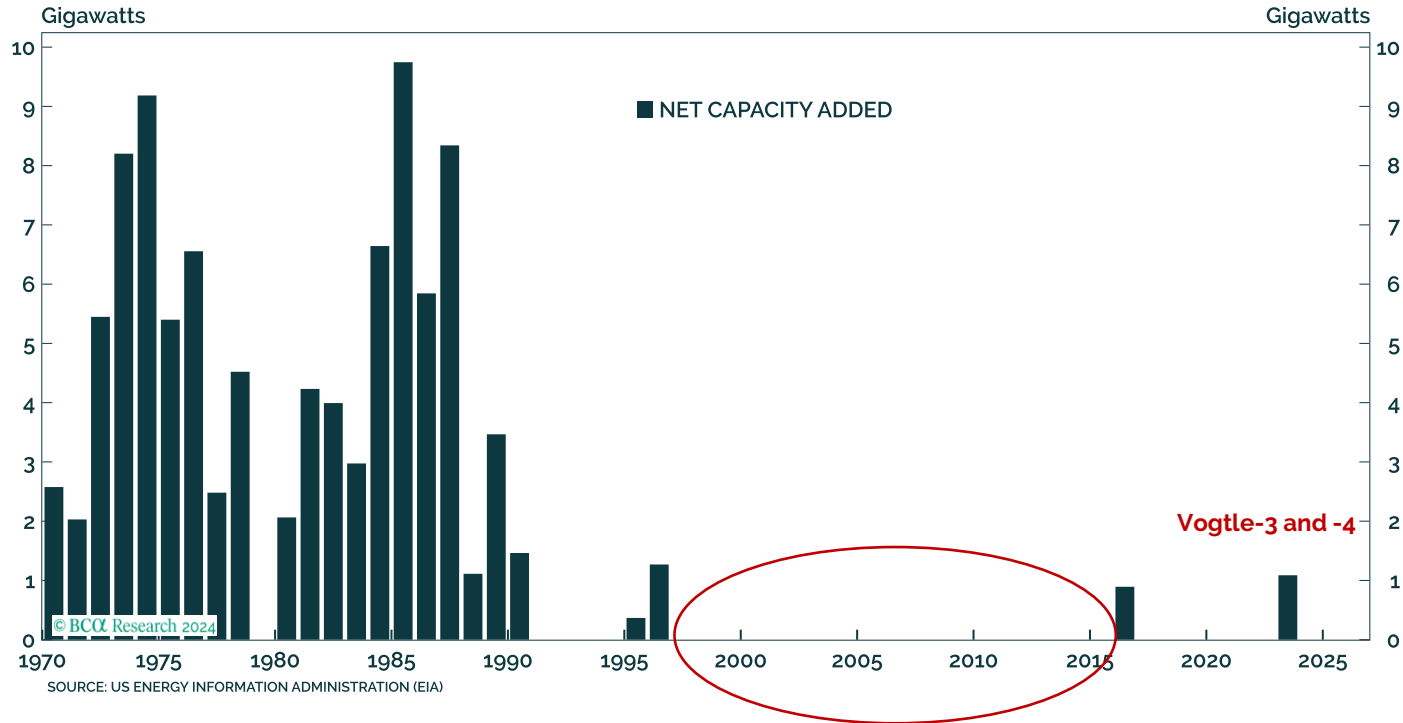
## Amazon buys stake in nuclear energy developer in push to power data centres

Citadel's Ken Griffin takes part in X-energy's \$500mn fundraising alongside ecommerce group



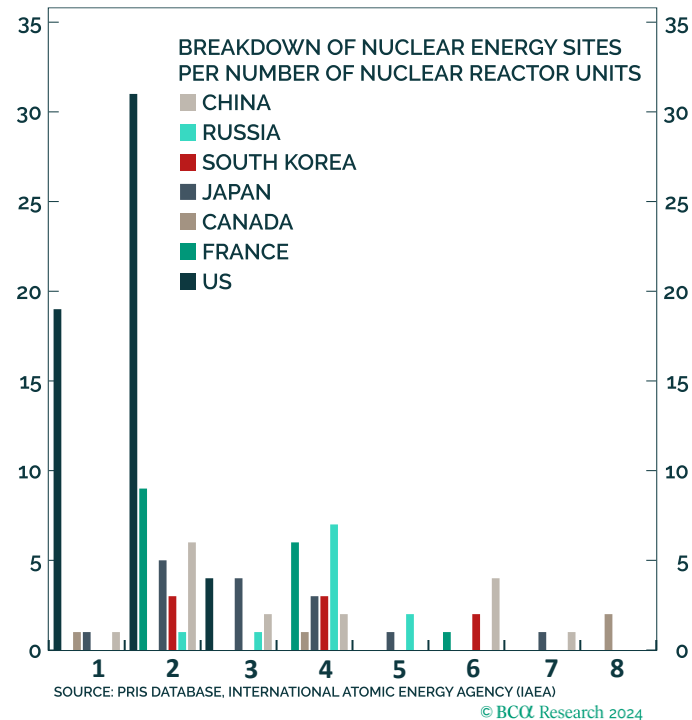
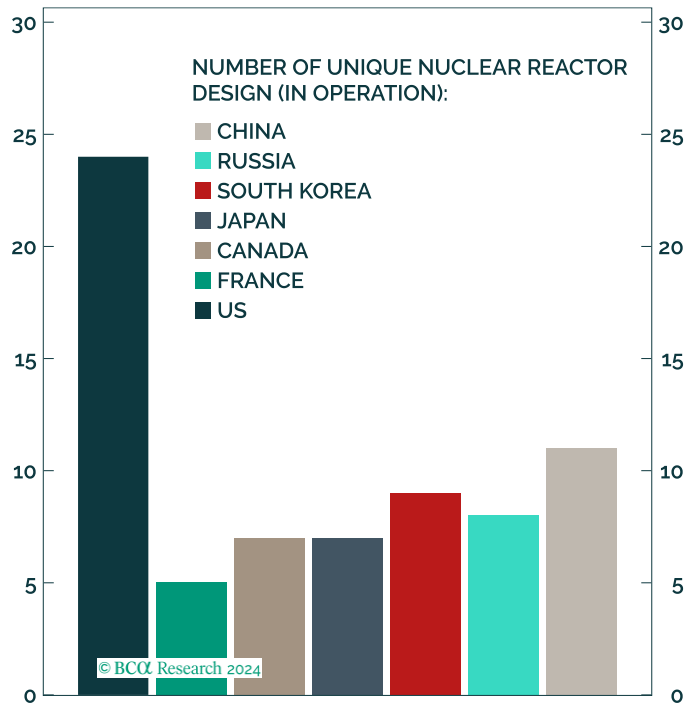
Amazon hopes X-energy's technology will help provide low carbon electricity to its data centres © EPA-EFE

# US Nuclear Is Decaying, Dominance Is Fading. So What?



# FAOK vs. NAOK – Lack Of Standardization Is Telling

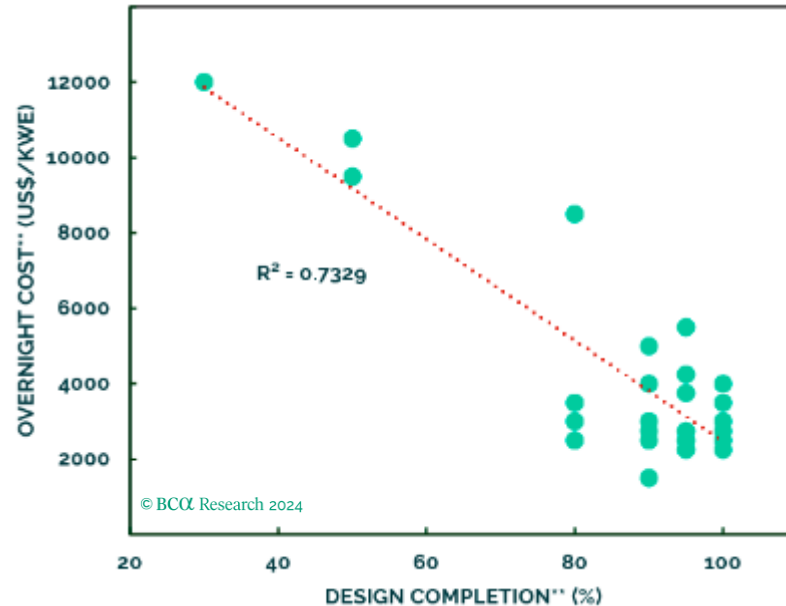
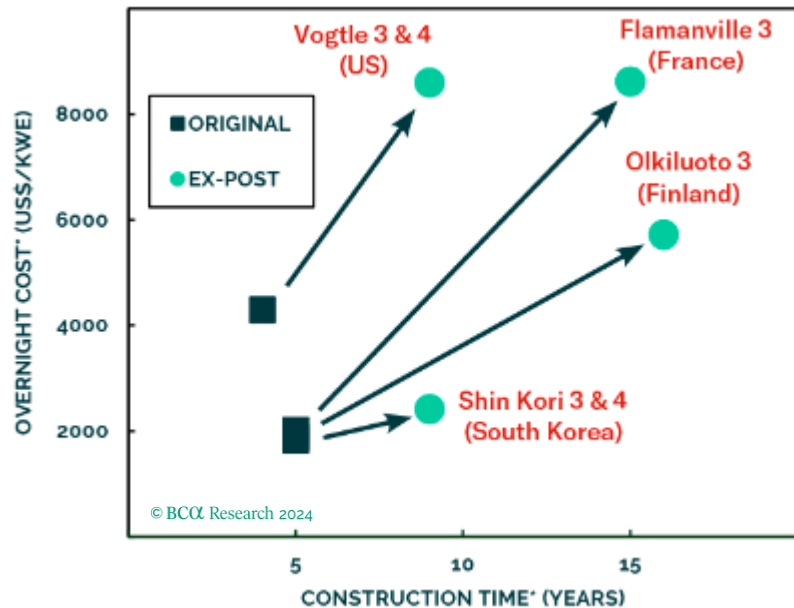
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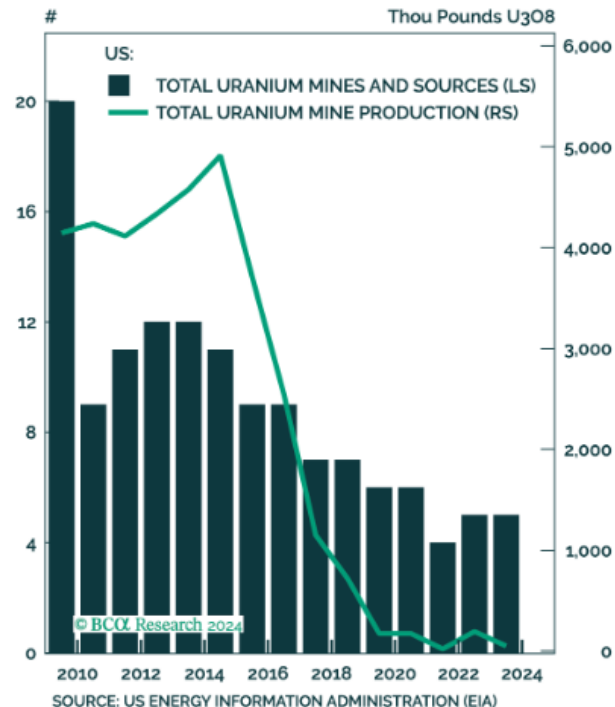
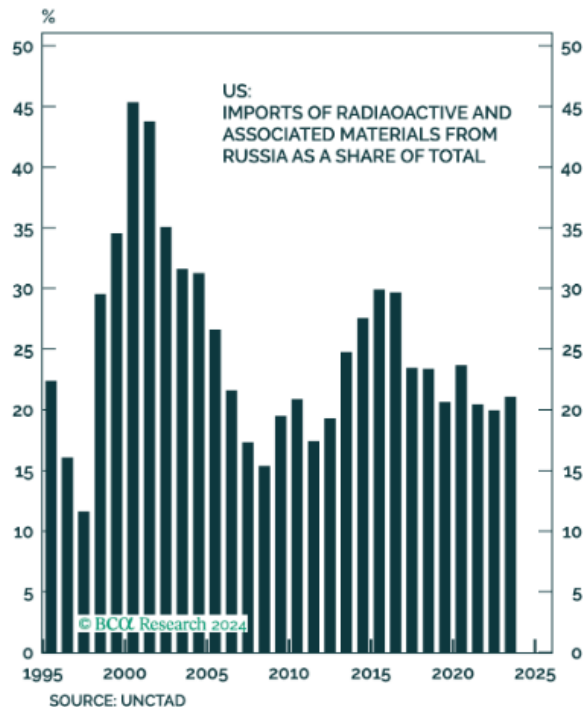
# Quicker To Standardize, Quicker To Finalize

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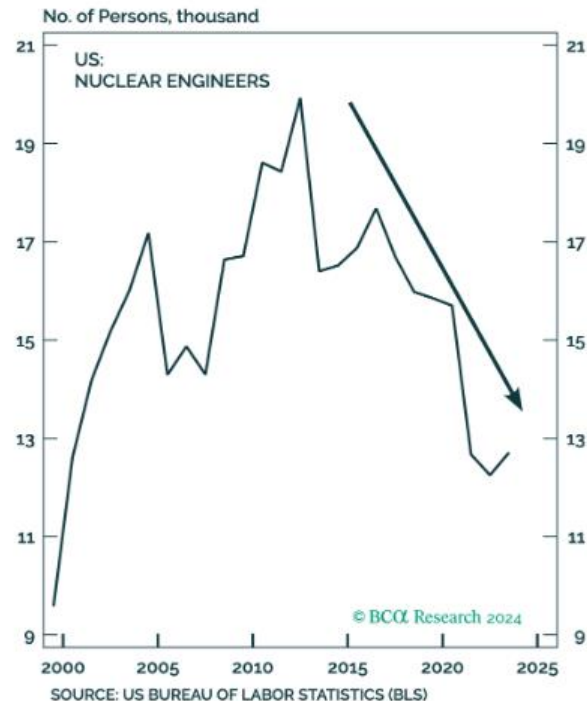
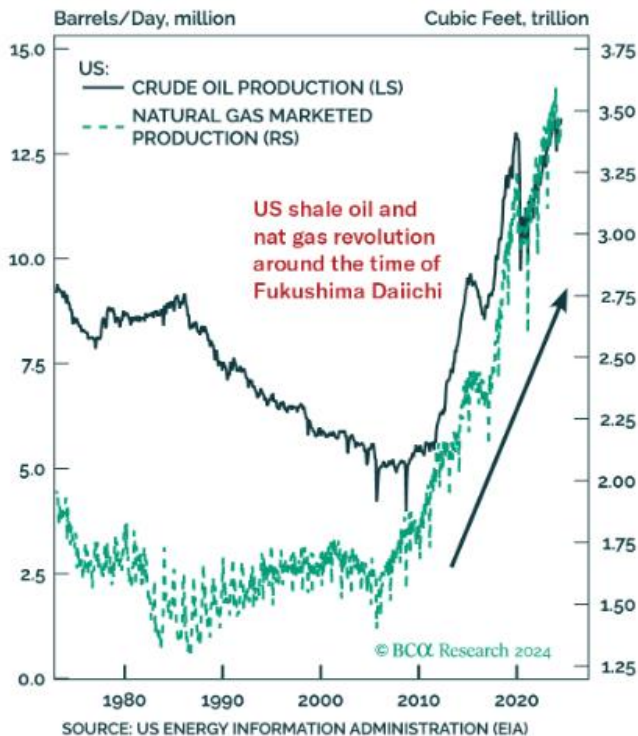
# Fuel Supply Has Become Geopolitical

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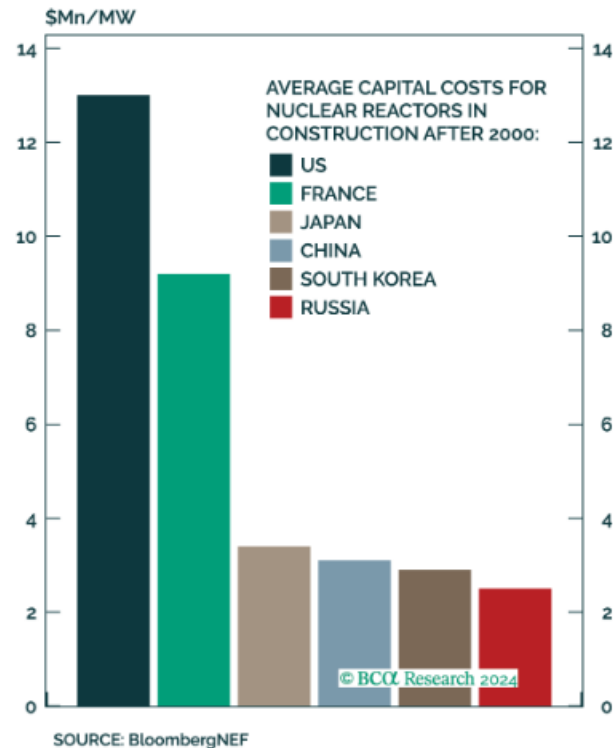
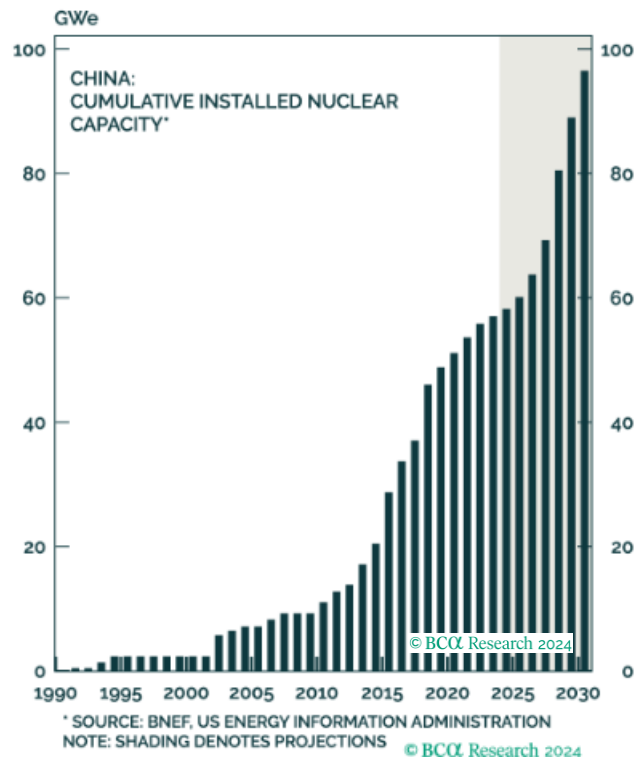
# Energy Competition & Industry Labor - More Setbacks

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# Competition Is Heating Up

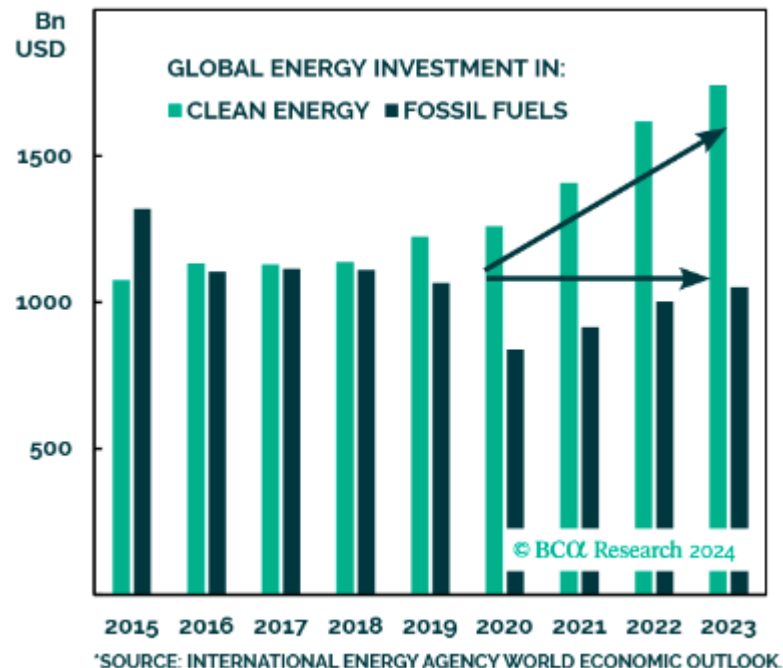
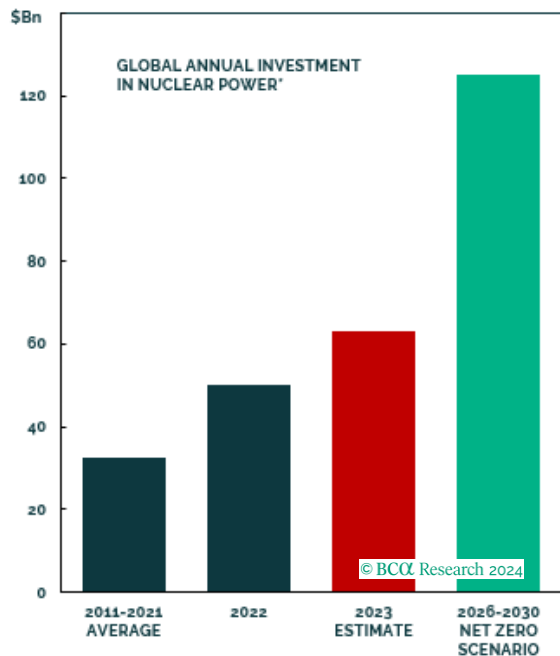
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# How Investors Can Profit From It

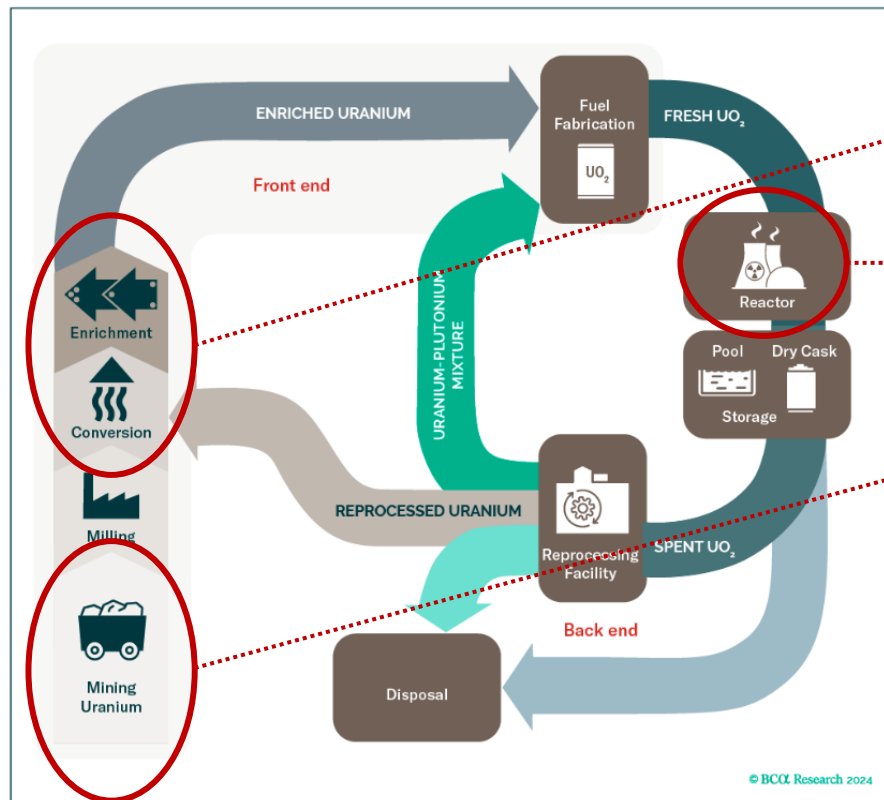
# Expect Investment To Ramp Up Quickly

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# Nuclear Fuel Cycle Under Pressure

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Conversion & Enrichment  
Bottlenecks

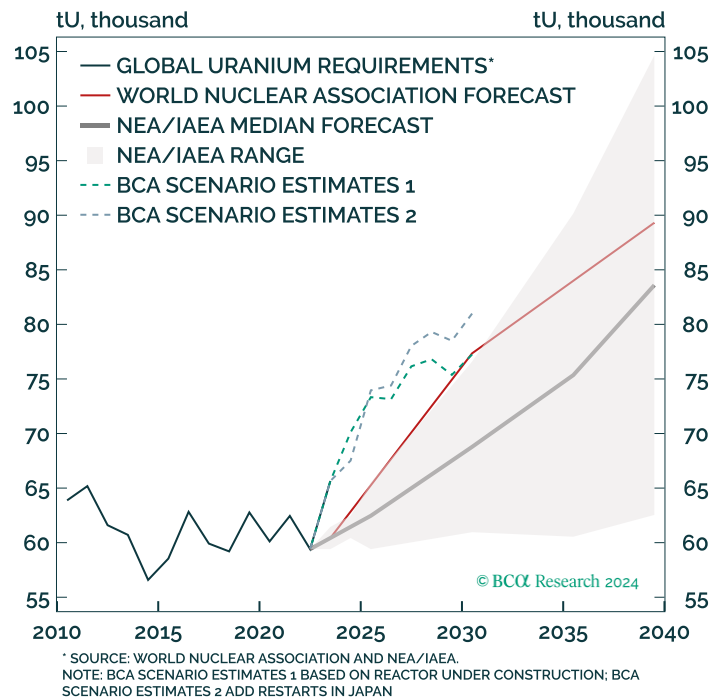
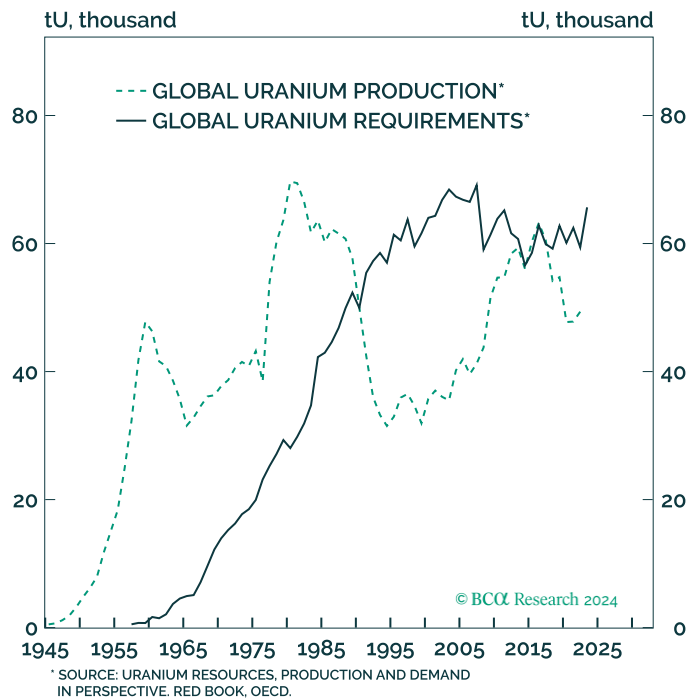
New Reactor Builds

Uranium Mining

NOTE: PLEASE SEE US NUCLEAR REGULATORY COMMISSION <https://www.nrc.gov/materials/fuel-cycle-fac/staoes-fuel-cycle.html>

# Uranium: Supply & Demand Are Bullish

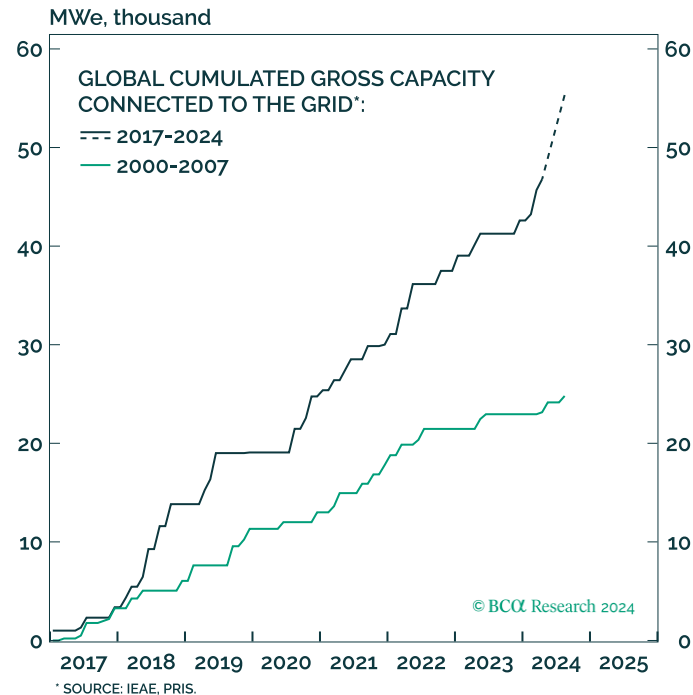
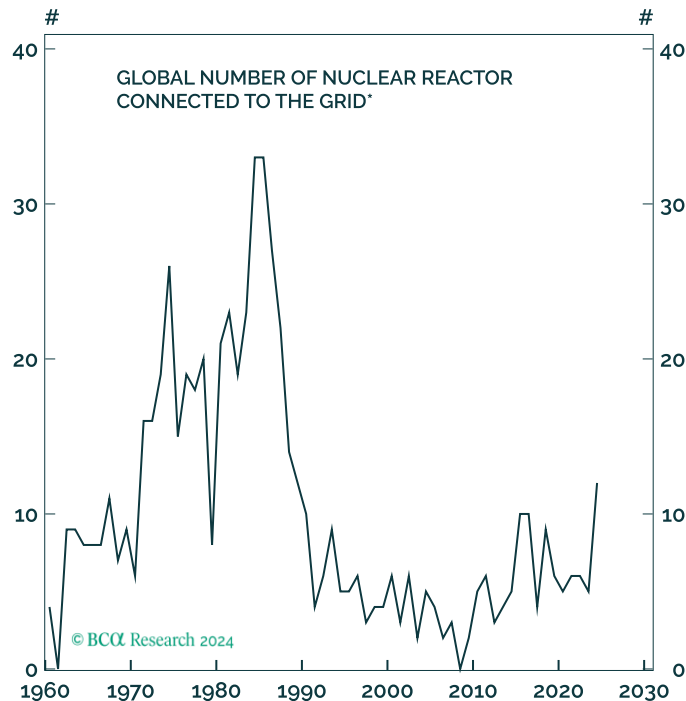
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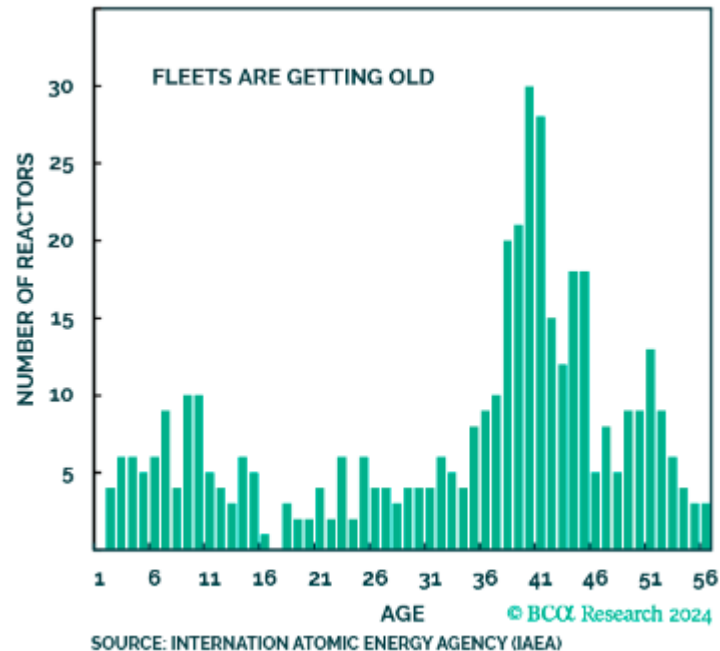
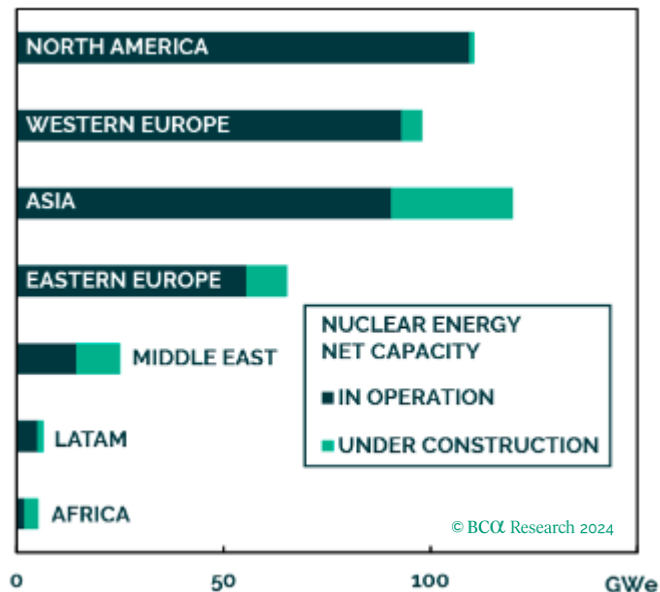
# New Reactors Are A Tailwind For Uranium

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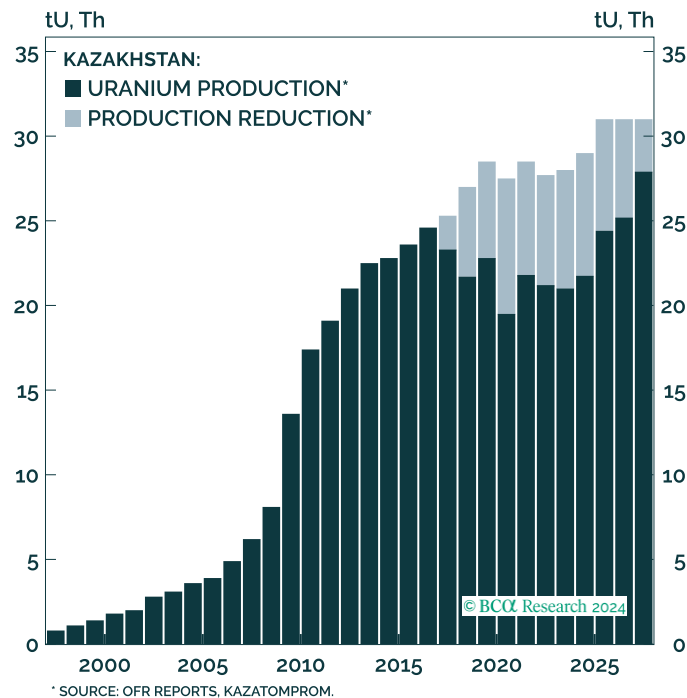
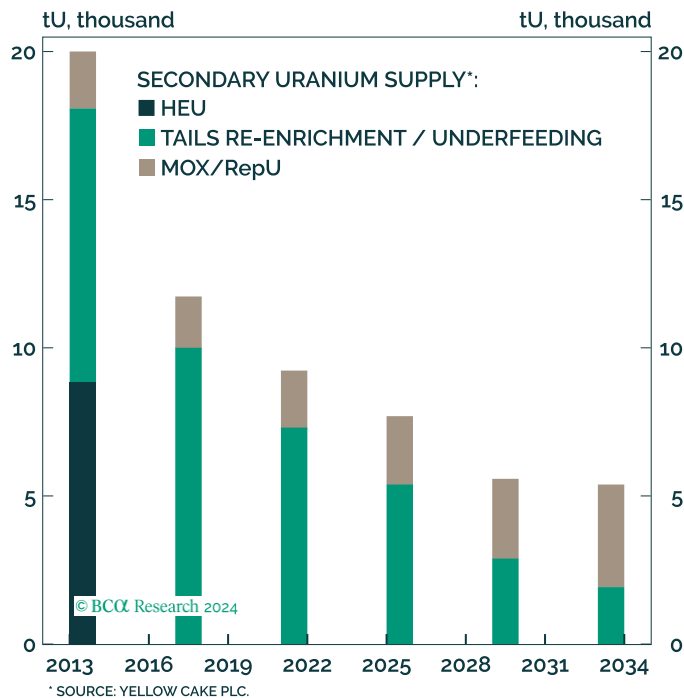
# Especially As Nuclear Fleets Age

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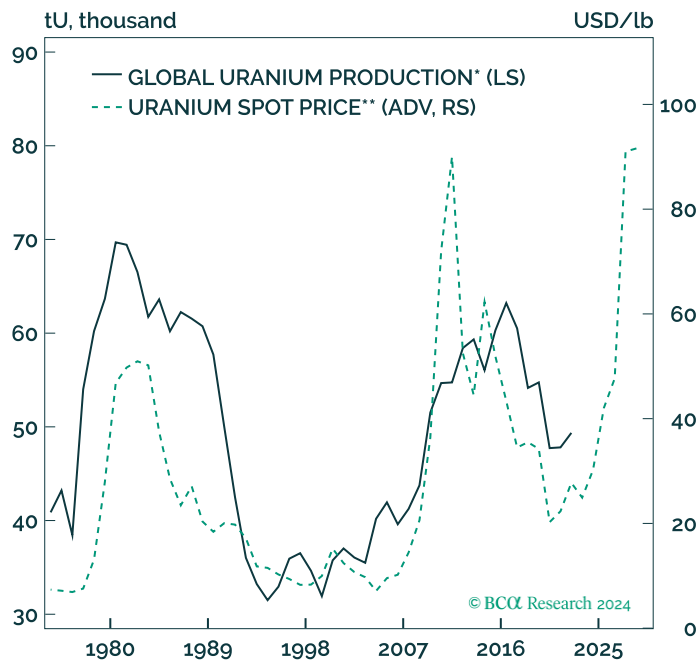
# There Are Also Uranium Supply Bottlenecks

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# A Rusty Industry...

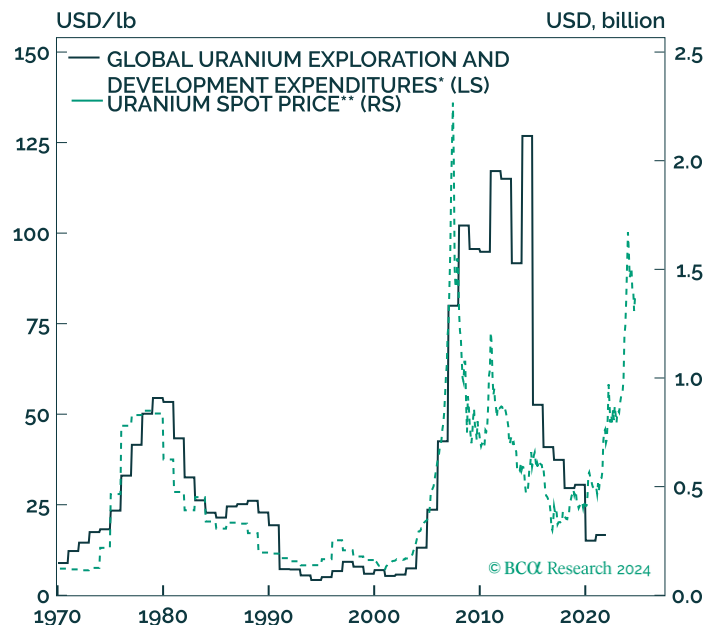
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\* SOURCE: REDBOOK, OECD.

\*\* SOURCE: INDUSTRY AVERAGE PRICES FROM YEAR-END PRICES PUBLISHED BY UxC

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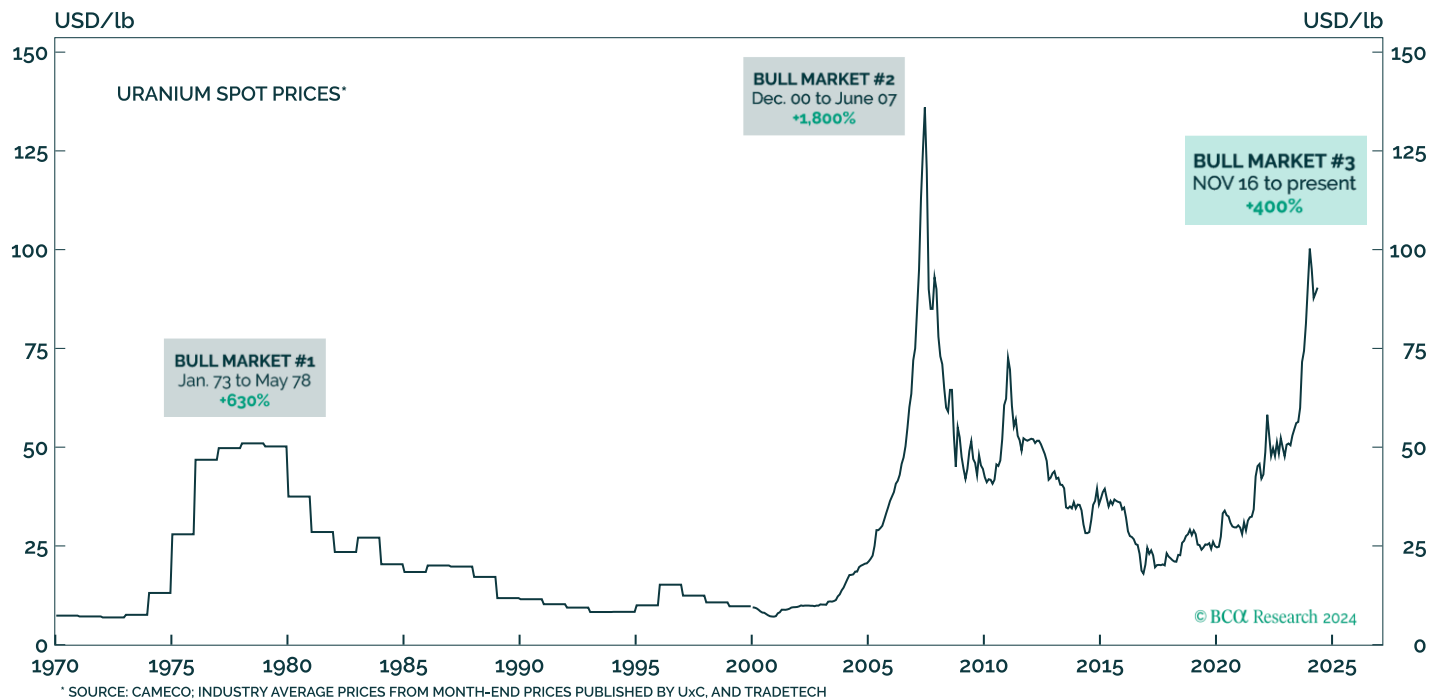
\* SOURCE: URANIUM 2022 RESOURCES, PRODUCTION AND DEMAND, JOINT REPORT BY NEA AND IEA.

\*\* SOURCE: CAMECO; INDUSTRY AVERAGE PRICES FROM MONTH-END PRICES PUBLISHED BY UxC AND TRADETECH.

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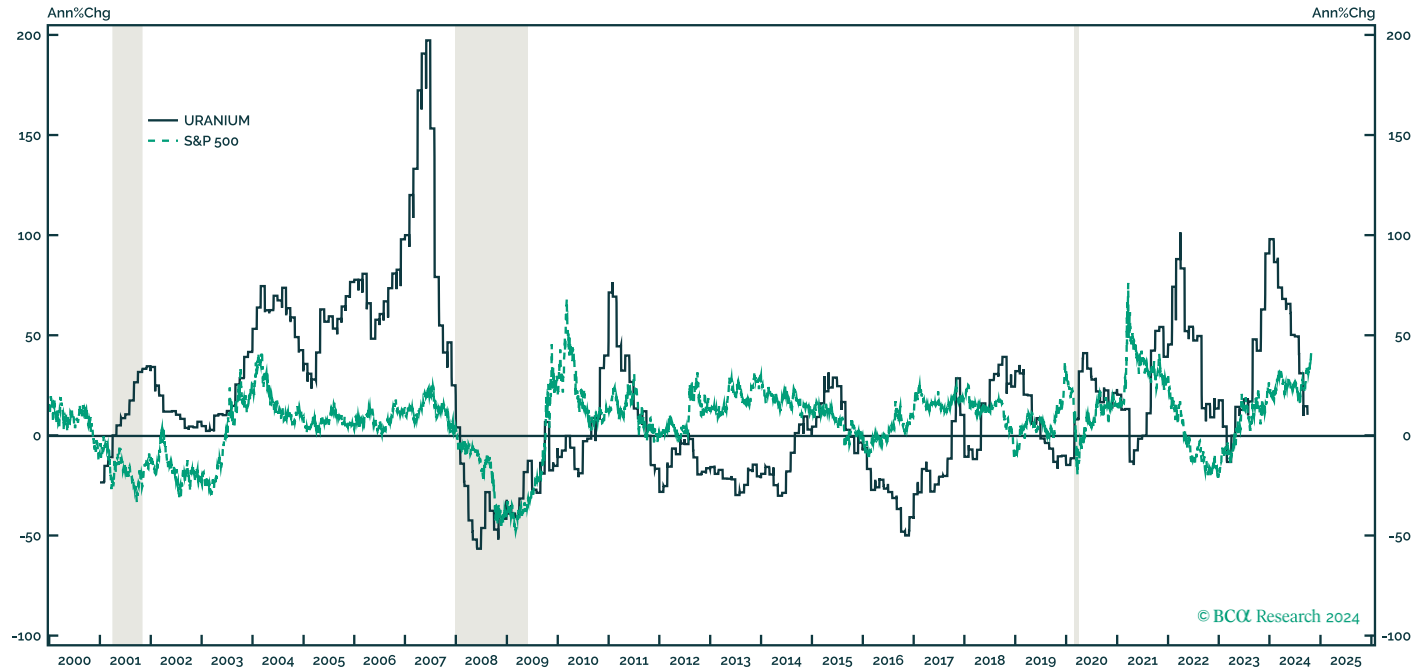
# A New Uranium Bull Market Brought To You By BCA

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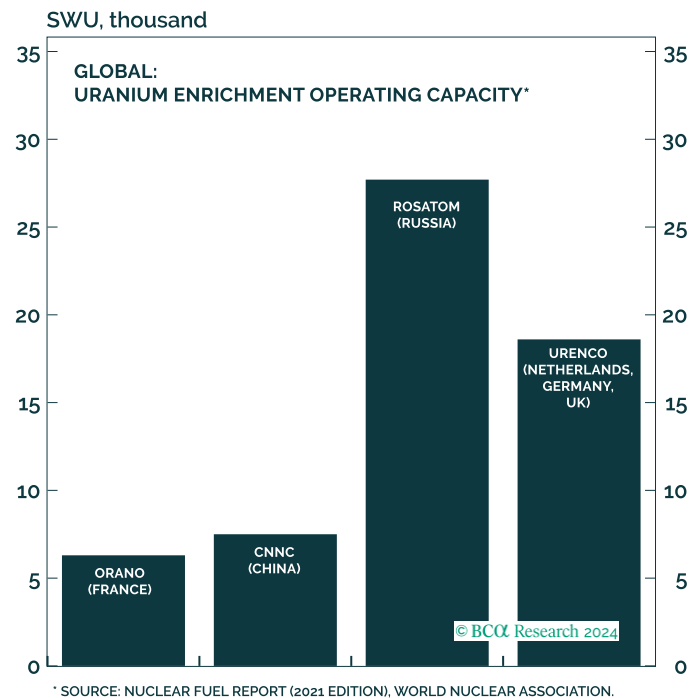
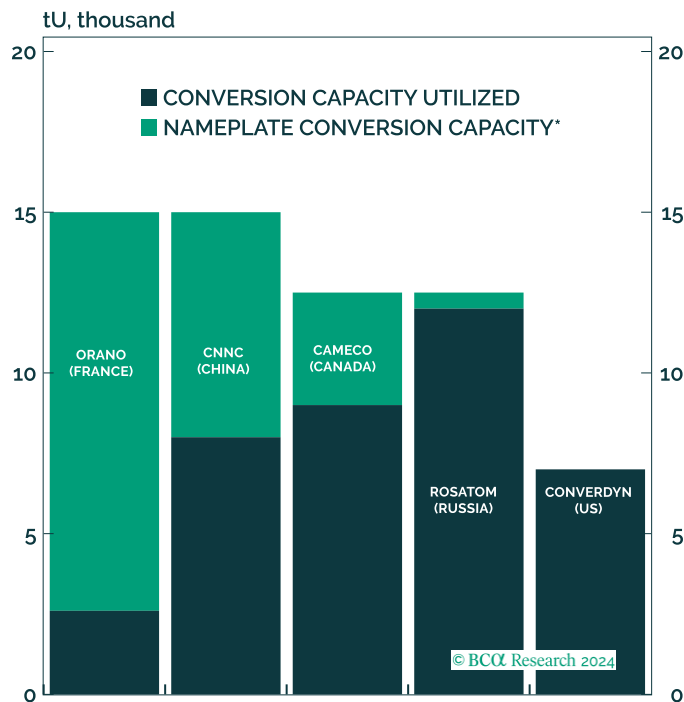
# Uranium = Diversification

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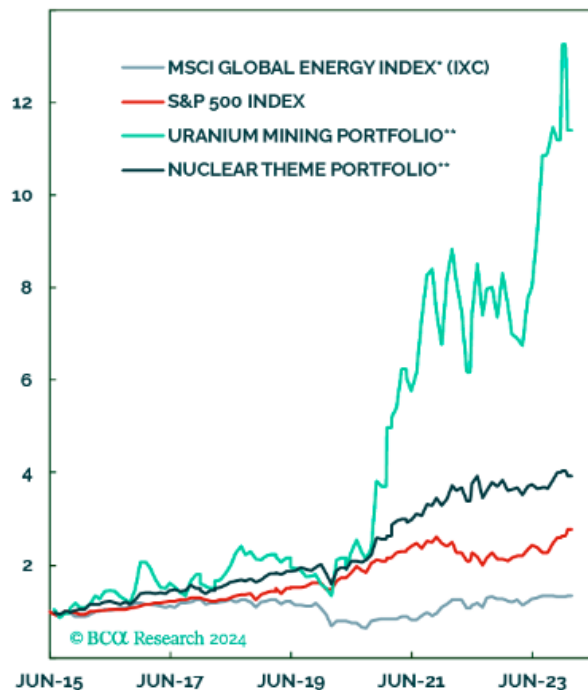
# Conversion & Enrichment Bottlenecks

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# Nuclear Renaissance: More Upside To Follow

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\* SOURCE: MSCI Inc. (SEE COPYRIGHT DECLARATION)

\*\*SOURCE: BCA EQUITY ANALYZER, S&P GLOBAL

NOTE: ALL SERIES SHOWN REBASED TO 1 ON JUNE 2015.

PHYSICAL URANIUM		
	YTD	SINCE 2022
SPUT	-12%	84%
YCA	-9%	59%
UROY	17%	-29%
URNM ETF	4%	72%
URNJ ETF	7%	NA
URA ETF	7%	33%
AVERAGE	2%	44%

URANIUM MINERS		
	YTD	SINCE 2022
CAMECO	23%	138%
URANIUM ENERGY	17%	125%
DENISON MINES	25%	50%
UR-ENERGY	-11%	7%
NEXGEN ENERGY	8%	68%
BHP GROUP	-17%	6%
AVERAGE	7%	66%

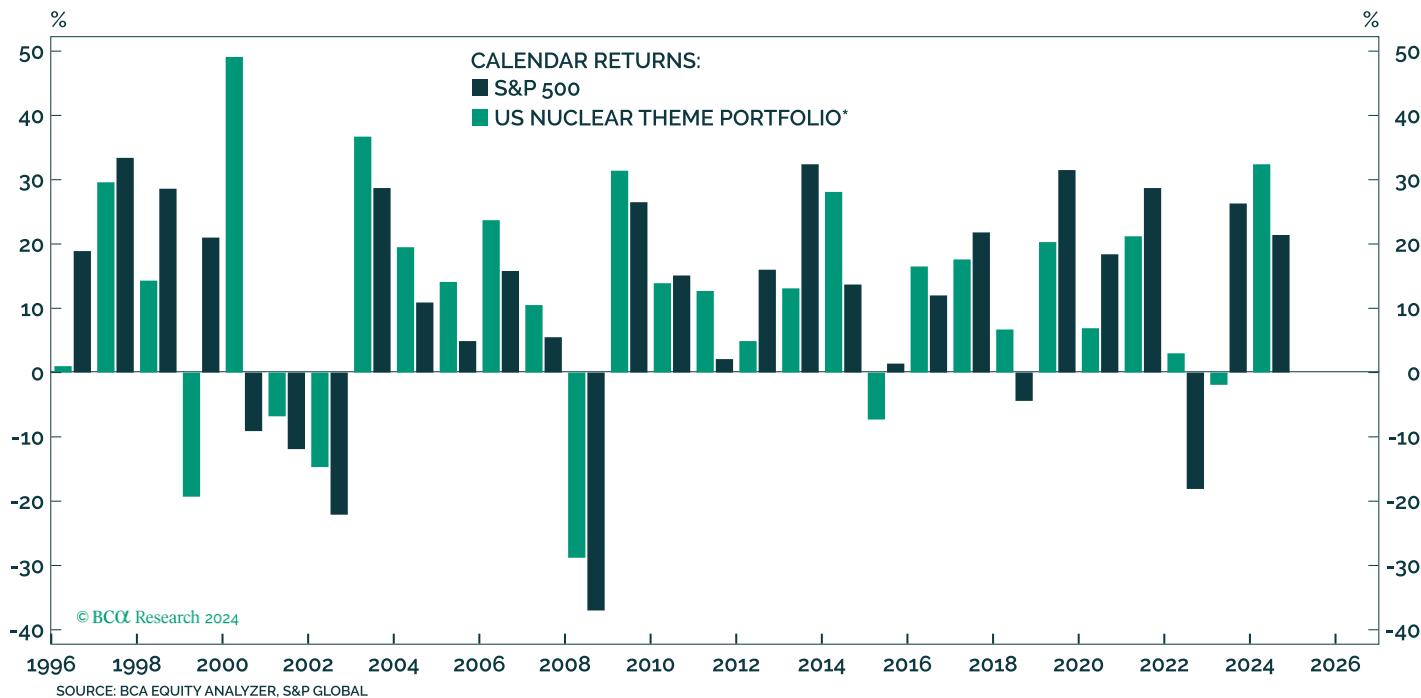
FUEL FABRICATION		
	YTD	SINCE 2022
LIGHTBRIDGE CORP	117%	-8%

NUCLEAR BUILD		
	YTD	SINCE 2022
GE VERNOVA	108%	NA
ROLLS-ROYCE	84%	352%
NUSCALE	461%	NA
NUKZ ETF	63%	NA
AVERAGE	179%	



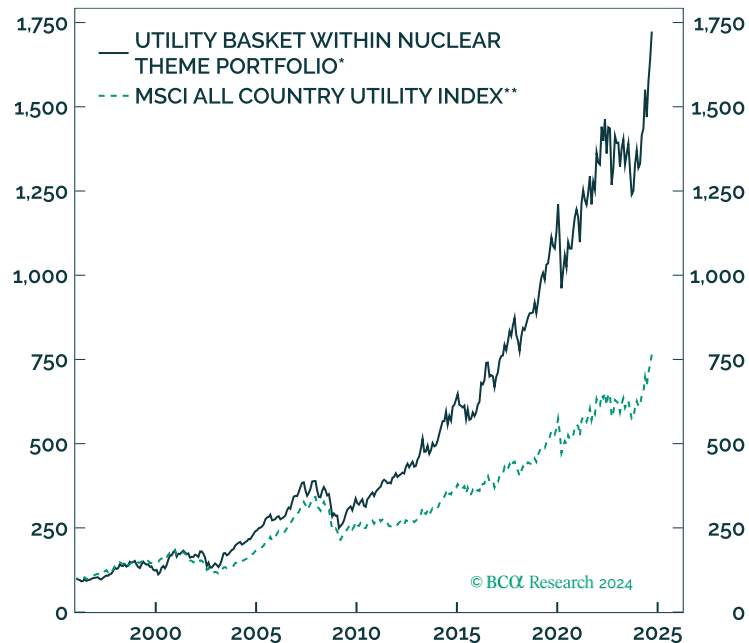
# Our Nuclear Portfolio Is Less Volatile, Better Performer

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# Utilities Still Have More To Gain

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\* SOURCE: BCA EQUITY ANALYZER, S&P GLOBAL  
 \*\* SOURCE: MSCI Inc. (SEE COPYRIGHT DECLARATION)  
 NOTE: BOTH SERIES SHOWN REBASED TO 100 AT JAN 1996

## Nuclear Theme Equity Basket: Top Constituents

Based On BCA Scores

TICKER	NAME	EXCHANGE	SECTOR	MKT CAP (USD Bn)	BCA SCORE
DTE	DTE Energy Company	NYSE	Utilities	26.2	83%
SMR	NuScale Power Corporation	NYSE	Industrials	2.1	81%
DUK	Duke Energy Corporation	NYSE	Utilities	90.4	77%
SO	The Southern Company	NYSE	Utilities	100.5	70%
NEE	NextEra Energy, Inc.	NYSE	Utilities	170.4	69%
SLX	Silex Systems Limited	ASX	Industrials	0.8	66%
WEC	WEC Energy Group, Inc.	NYSE	Utilities	30.7	65%
PEG	Public Service Enterprise Group	NYSE	Utilities	45.0	64%
BHP	BHP Group Limited	ASX	Materials	143.5	63%
PNW	Pinnacle West Capital Corporation	NYSE	Utilities	10.0	63%

SOURCE: BCA EQUITY ANALYZER, S&P GLOBAL