

**GLOBAL X**  
by Mirae Asset

# Global X Uranium ETF (URA)

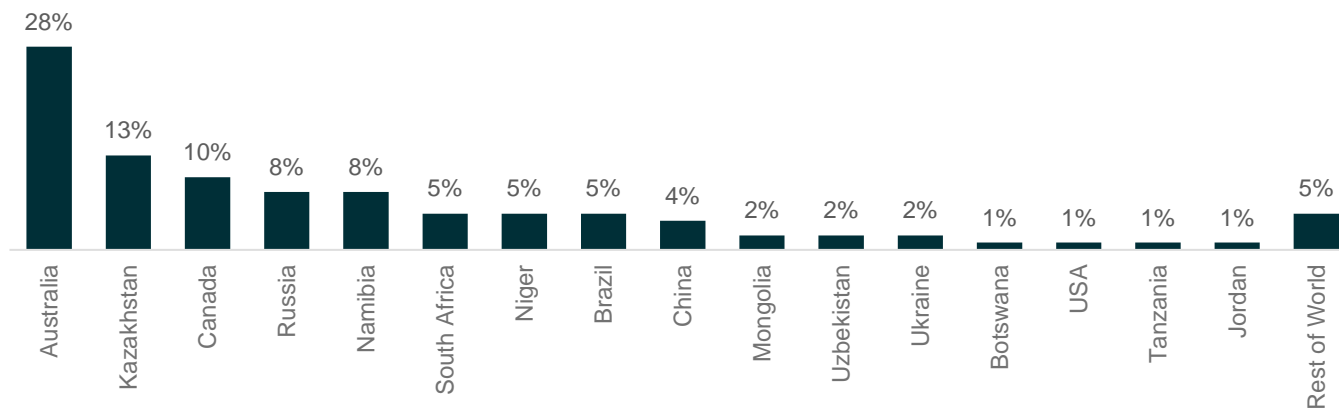
# Exploring the Uranium Market

---

## Uranium: Nuclear Becoming Key on Transition to Green

Uranium is a heavy, dense, and radioactive metal, making it a potent source of concentrated energy. Uranium fuel enables nuclear power plants to generate electricity.

### Percentage Of Uranium Availability Worldwide



Sources: World Nuclear Association, August 2023.

### Largest Producing Uranium Mines In 2022 By Recovery Method

Type	Mine	Country	Main owner	Production (tonnes U)	% of World
Underground	Cigar Lake	Canada	Cameco/Orano	6928	14
Open Pit	Husab	Namibia	Swakop Uranium (CGN)	3358	7
ISL	Inkai, sites 1-3	Kazakhstan	Kazatomprom/Cameco	3201	7

Sources: World Nuclear Association, August 2023.

### How is Uranium Used to generate electricity?

- Nuclear power is one of the few sources of electricity that combines large-scale power output and low greenhouse gas emissions, with costs comparable to those of traditional fossil fuel power stations.
- Nuclear reactors generate electricity by producing immense heat, by splitting uranium-235 atoms in the process of nuclear fission.
- Ongoing fuel costs for nuclear power plants tend to be quite low, given the minimal amount of uranium needed to power the plant.

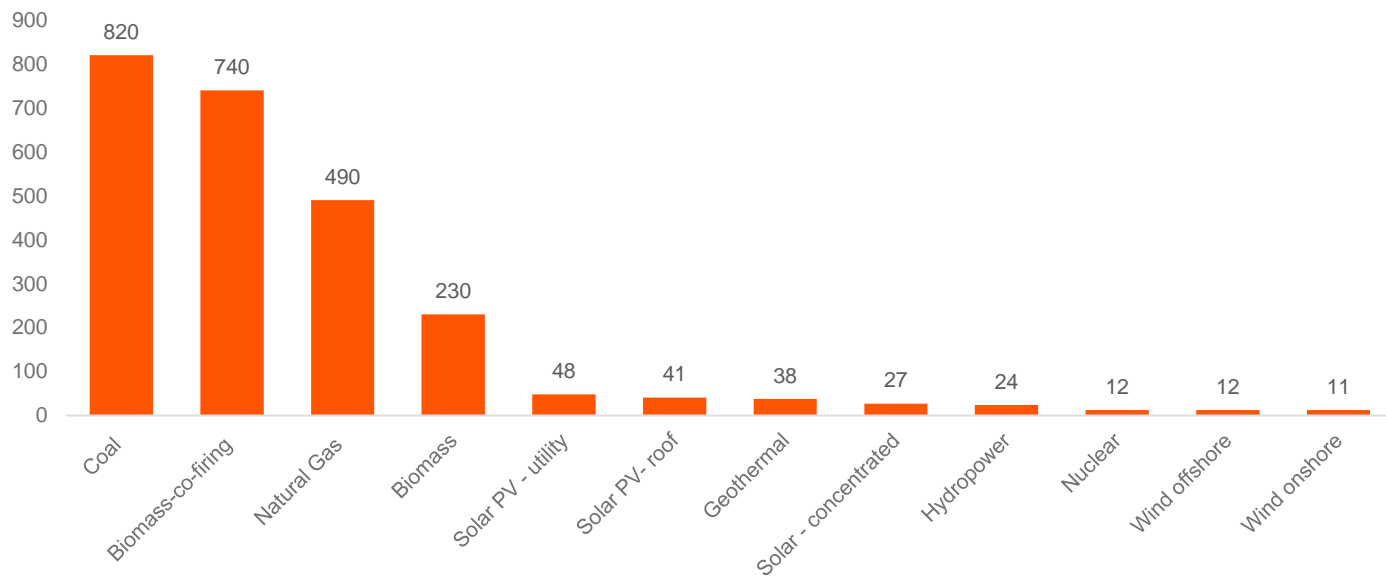
### Advantages of nuclear power that uses Uranium

- Fuel costs are low, given the minimal amount of uranium needed to power the plant.
- Nuclear is also among the cleanest methods of producing electricity in terms of greenhouse gas emissions.

## Uranium: Fossil Fuel Reductions Set to Keep Uranium Demand High

Nuclear power, as a low carbon emissions energy option, is the biggest source of uranium demand globally. Nuclear power emits far less carbon dioxide than traditional fossil fuels, with emissions of just 12 grams of CO2 per kW/h – the same as offshore wind energy.

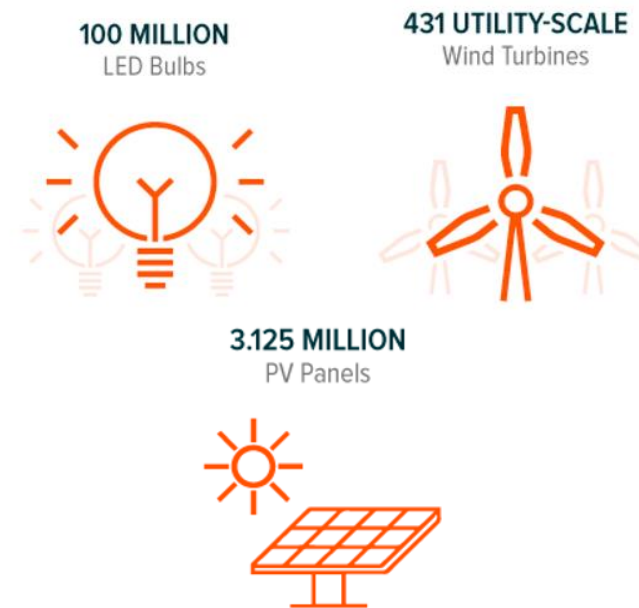
### Carbon Dioxide Emissions By Energy Source (KW/h)



Sources: World Nuclear Association, October 2022.

### How much power does a nuclear reactor produce?

A typical reactor produces around 1 Gigawatt of power or the same amount of power as:

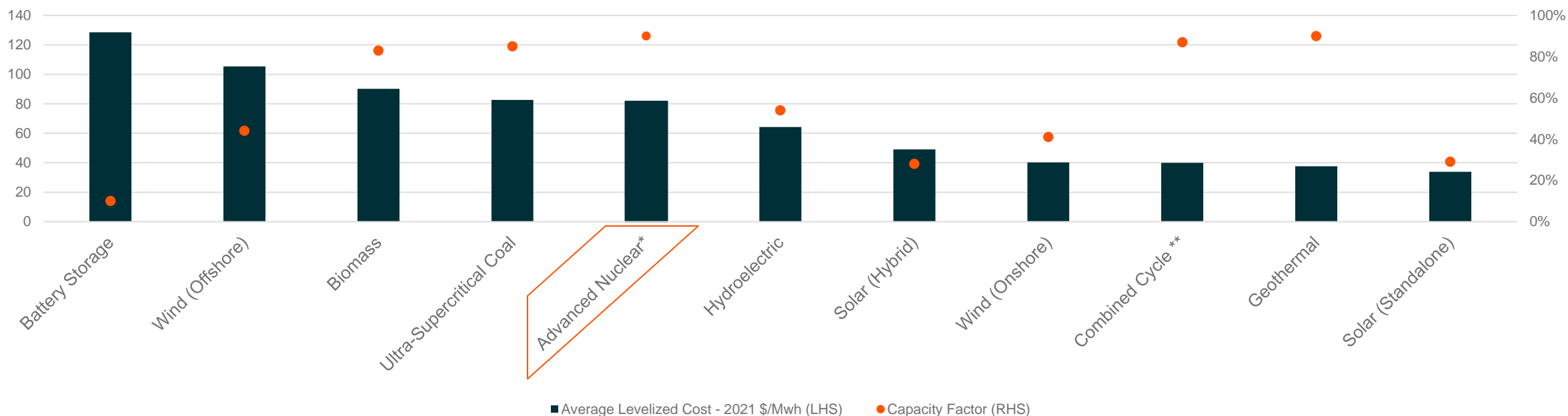


Sources: Office of Nuclear Energy, 2022.

## Uranium: Nuclear as a Reliable and Cost-Effective Source of Energy

Nuclear is a highly dependable source of energy as it operates at full capacity more than 90% of the time. From a cost perspective, the average levelized cost of battery storage is 57% more expensive than nuclear, particularly notable given that nuclear plants achieve almost 3 times greater reliability than wind and solar plants.

### Estimated Average Levelized Cost Of Energy And Capacity Factor



Source: EIA, 2022

\*Advanced Nuclear: light water reactors (power reactors moderated and cooled by water) and small modular reactors.

\*\*Combined Cycle: An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more gas (combustion) turbines.

## Uranium: Government Support for Nuclear Energy

For a third successive year, the International Atomic Energy Agency (IAEA) has revised up its projections of the potential growth of nuclear power capacity for electricity generation during the coming decades. <sup>1</sup> The increased IAEA projects show that nuclear power should continue to play an indispensable role in low carbon production, the tables below highlights a few of the key investments and policies changes from governments across the globe.

### United States

The Inflation Reduction Act, signed into law in August 2022, includes tax credits for existing nuclear power plants and incentivizes advanced nuclear power deployment.<sup>2</sup>

### China

By 2060, China's nuclear fleet should total 400 gigawatts, or around 18% of the nation's total electricity generation, that is more than the present fleet of nuclear power plants in the world.<sup>3</sup>

### European Union

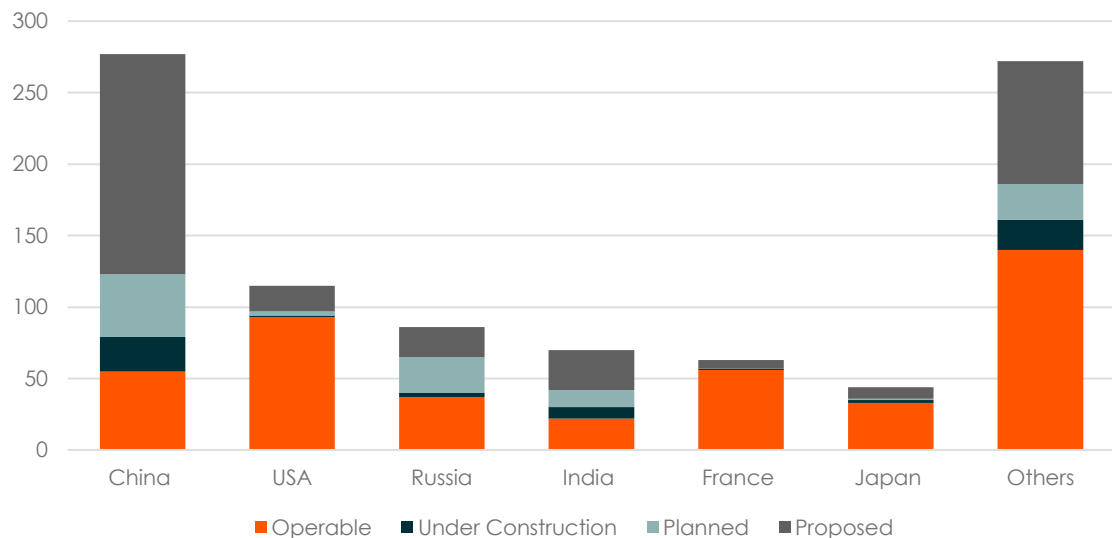
Nuclear has been positioned as a "transition activity" under EU Green Taxonomy. In March 2023, EU agreed that nuclear power could help achieve the challenging climate objective.<sup>4</sup>

Sources:1. IAEA, October 2023. ; 2. Office of Nuclear Energy, September 2023. ; 3. Bloomberg, April 2023. ; 4. Bloomberg, March 2023.

## Uranium: New Nuclear Reactors as a Proxy for Uranium Demand

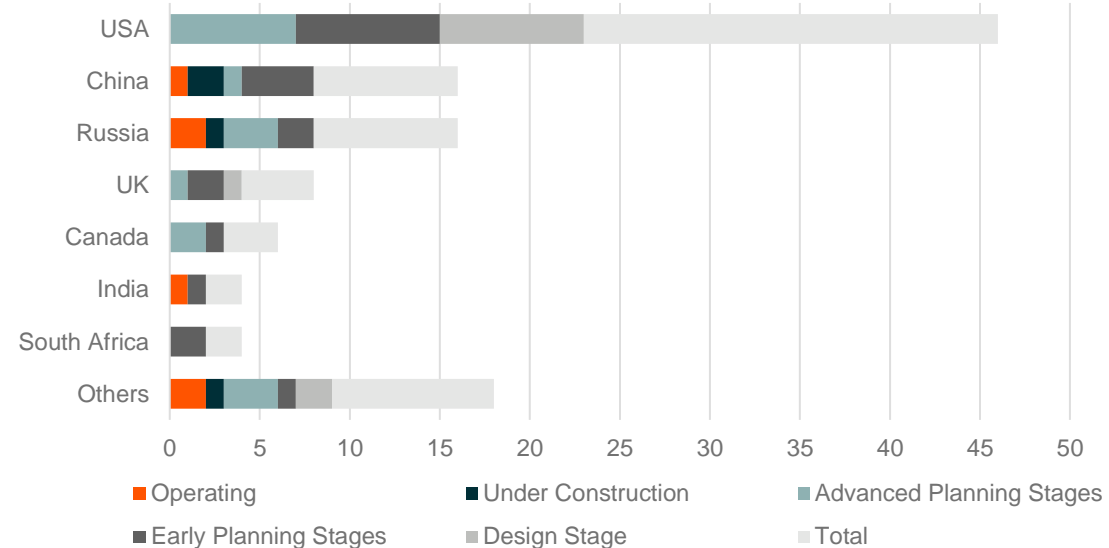
- The number of nuclear reactors under construction represents a proxy for future geographical demand increases. Globally, there are 436 operable reactors and 60 reactors under construction. The pro-nuclear energy sentiment is the strongest in developing countries such as China, India and Russia.
- New reactors such as small module reactors (SMRs) come with enhanced safety features helping shed the stigma attached to nuclear plants. More than 70 SMR reactors are under construction or in the licensing stage in Argentina, Canada, China, Russia, South Korea and the United States.

### Reactors By Country



Source: World Nuclear Association, August 2023.

### Small Module Reactors By Developer Country (# of reactors)



Source: World Nuclear Association, July 2023.

# Global X Uranium ETF (URA)





# URA: Uranium ETF



URA invests in companies involved in uranium mining and the production of nuclear components.



### Targeted Exposure

URA is a targeted play on uranium mining and the production of nuclear components.



### ETF Efficiency

In a single trade, URA delivers efficient access to a basket of companies involved in the mining uranium and producing nuclear components.



### Emerging Energy Opportunity

Nuclear power emits zero direct emissions during operations.<sup>1</sup> As governments pledge to reduce fossil fuel reliance, nuclear could be a viable bridge while more renewable capacity is built.

### Key Facts

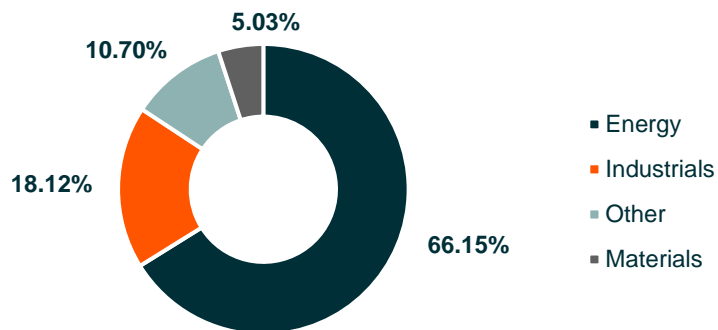
**Inception Date: 11/04/10**  
**Ticker: URA**  
**Tracking-Index: Solactive Global Uranium & Nuclear Components Total Return Index**

### Stats & Fees

**Total Expense Ratio: 0.69%**  
**Number of Stock Holdings: 46<sup>2</sup>**

### Key Characteristics

#### URA SECTOR BREAKDOWN<sup>2</sup>



#### URA TOP 10 HOLDINGS<sup>2</sup>

Name	Ticker	Weight
Cameco Corp	CCO US	22.78%
Sprott Physical Uranium Trust	U-U US	10.53%
NAC Kazatomprom JSC	KAP US	7.08%
NexGen Energy Ltd	NXE US	6.30%
Paladin Energy Ltd	PDN US	4.77%
Uranium Energy Corp	UEC US	4.72%
Yellow Cake PLC	YCA US	3.33%
Denison Mines Corp	DML US	3.32%
Energy Fuels Inc/Canada	EFR US	3.15%
Boss Energy Ltd	BOE US	2.51%

1. Energy Information Administration, Dec 2021. 2. Source: Bloomberg, as of 9/30/2023. Holdings are subject to change. "Other" classifies a company as one that does not primarily fit into any of the other sectors. It can include companies with diverse range of business activities or not primarily focused on a specific industry, "Other" may also include cash positions and/or allocations outside of equities such as currency positions.

# URA: Uranium ETF

## Different ways to access Uranium:

### 1 Physical Ownership/Physical Uranium Trust

- Uranium, unlike other commodities does not trade directly on the spot market
- Investing in a trust in the form of units, is the best way to gain direct spot exposure

### 2 Options and Futures

- Historically closely tracks spot prices in Uranium but can be susceptible to contango<sup>1</sup>

### 3 Uranium Mining Companies

- Leveraged plays on Uranium prices, owing to the high fixed costs of extracting the metal
- Indirect exposure to Uranium given that miners can have revenues from other metals

### 4 Uranium Mining ETF

- Invests in a diverse basket of companies involved in Uranium Industry
- Indirect exposure to Uranium given that miners can have revenues from other metals

## Index Methodology – Solactive Global Uranium & Nuclear Components Total Return Index

### 1 Index Selection

- The index is designed to track the performance of companies that have or are expected to have business operations or exposure in the uranium industry.
- Each company is classified as follows according to the extent to which it generates revenues from operations in the **Uranium industry**:
  - **Pure-Play**: Has primary business operations that are related to the uranium industry, in particular, uranium mining, exploration for uranium, and physical uranium.
  - **Non-Pure Play**: Has business operations that are related to the uranium industry, and in which it generates large revenues.
- **Nuclear Component Producer** companies will be added to the list of index constituents.

### 2 Selection Pool

Eligible companies must have:

- **Free Float Market Capitalization** of at least \$50M if they are not current constituents and at least \$30M if they are current constituents.
- **Average Daily Trading Volume** of at least \$100k over the last three months if they are not current constituents and \$50k for existing constituents.
- **Listing** on a regulated stock exchange in the form of shares is tradable for foreign investors without restrictions.
- **Controversial Weapons Exclusionary Screen**:
  - Companies involved in the production development or maintenance any weapon or key components for these weapons, which violate humanitarian principles through normal use. Companies that produce or develop key and dedicated components for controversial weapons.
  - Companies that hold  $\geq 20\%$  stake in a company that is involved in controversial weapons.
  - Companies currently  $\geq 50\%$  owned by a company that is involved in controversial weapons.

### 3 Weighting Scheme

Index components are weighted according to the lesser of their Free Float Market Capitalization and the Average Daily Trading Value multiplied by 2000:

- Non-pure Play and Nuclear Component Producer companies will be capped at 2%.
- The maximum weight of a Pure-Play company is 22.5%.
- The aggregate weight of the index constituents structured as Investments trusts, which provide exposure to physical uranium, is capped at 10%.
- The aggregate number of **Non-pure Play** companies and Nuclear Component Producer companies will be capped at 15.

### 4 Rebalances/Reviews

The index follows a **quarterly rebalancing schedule**, made on the last business day in January, April, July, and October each year, at the close of business.

1. Contango is when the spot price of a commodity trades below its future price.

# Global X ETFs

Additional insights can be found online at: [www.globalxetfs.com/research/](http://www.globalxetfs.com/research/), or on Twitter: [@RReddy\\_gx](https://twitter.com/RReddy_gx) and [@RCaselli\\_gx](https://twitter.com/RCaselli_gx).

**GLOBAL X**  
by Mirae Asset

**GLOBAL X ETFs RESEARCH**

## Uranium, Explained

Authorized by:  
**Rohan Reddy**  
Director of Research

Date: October 11, 2023  
Topic: Commodities






**GLOBAL X**

**GLOBAL X ETFs RESEARCH**

**Uranium, Explained**

Nuclear power is a clean, efficient, and essential source of electricity used to meet the world's growing energy demands. Nuclear power can produce electricity at a greater scale while minimizing greenhouse gas emissions. This helps countries expand their electricity grid and usage, while limiting air pollution. Roughly 9% of the world's electricity was generated from nuclear power in 2022, accounting for approximately 30% of the world's low-carbon electricity.<sup>1,2</sup> According to the new projections, to meet energy transition goals by 2050 about 800 GW of new nuclear power may be needed, which may represent around 20 per cent of potential global electricity consumption.<sup>3</sup>

**CURRENT STATUS OF NUCLEAR POWER GENERATION**  
Source: World Nuclear Association (2022, Aug 2023)

	2nd	Largest Source of Global Low Carbon Electricity
	436	Nuclear Power Reactors Operating
	60	Nuclear Power Reactors Under Construction
	391	GWs Total Net Installed Capacity
	371	2350 Inspection Nuclear Capacity

Uranium fuel enables nuclear power plants to generate electricity. A single uranium pellet, slightly larger than a pencil eraser, contains the energy equivalent of a ton of coal, three barrels of oil, or 17,000 cubic feet of natural gas.<sup>4</sup> Global nuclear power output primarily drives the demand for this commodity. Despite expected growth in nuclear power, and a correlative increase in uranium demand, gaining exposure to this commodity sometimes proves difficult. Uranium trades with thin liquidity on futures exchanges and there are ownership restrictions related to its usage in weapons production.

**Key Questions Answered Here**

1. What is uranium?
2. How is uranium extracted?
3. How is uranium used to generate electricity?
4. What are the advantages of uranium?
5. What is the outlook for uranium demand?
6. What is the status of the uranium supply?
7. How do you invest in uranium?

**GLOBAL X**  
by Mirae Asset

OUR ETFs RESEARCH | ABOUT CONTACT | NEWS PRIVACY POLICY

## Important Information

Investing involves risk, including the possible loss of principal. International investments, including emerging markets, may involve risk of capital loss from unfavorable fluctuation in currency values, from differences in generally accepted accounting principles, or from economic or political instability in other nations. Emerging markets involve heightened risks related to the same factors as well as increased volatility and lower trading volume. Narrowly focused investments may be subject to higher volatility. There are additional risks associated with investing in Uranium and the Uranium mining industry. URA is non-diversified.

Shares of ETFs are bought and sold at market price (not NAV) and are not individually redeemed from the Fund. Brokerage commissions will reduce returns.

***Carefully consider the fund's investment objectives, risks, and charges and expenses before investing. This and other information can be found in the fund's full or summary prospectuses, which may be obtained at [globalxetfs.com](http://globalxetfs.com). Please read the prospectus carefully before investing.***

Global X Management Company LLC serves as an advisor to Global X Funds. The Funds are distributed by SEI Investments Distribution Co. (SIDCO), which is not affiliated with Global X Management Company LLC or Mirae Asset Global Investments. Global X Funds are not sponsored, endorsed, issued, sold or promoted by Solactive AG, nor does Solactive AG make any representations regarding the advisability of investing in the Global X Funds. Neither SIDCO, Global X nor Mirae Asset Global Investments are affiliated with Solactive AG.

# Appendix: Uranium

## Uranium: Nuclear Becoming Key on Transition to Green

- World Nuclear Association.(2023, August) Uranium availability, Uranium resources by country in 2019: Identified resources recoverable (reasonably assured resources plus inferred resources), to \$130/kg U, 1/1/19, from OECD NEA & IAEA, Uranium 2020: Resources, Production and Demand ('Red Book'). The total recoverable identified resources to \$260/kg U is 8.070 million tonnes U.
- World Nuclear Association.(2023, August) Supply of Uranium.

## Uranium: Fossil Fuel Reductions Set to Keep Uranium Demand High

- World Nuclear Association.(2022, October) Climate Change- The Science. Sources, residence and sinks. Average life-cycle carbon dioxide-equivalent emissions for different electricity generators. IPCC.
- Office of Nuclear Energy. (2022, July) Infographic: How Much Power Does A Nuclear Reactor Produce? March 31, 2021.

## Uranium: Nuclear as a Reliable and Cost-Effective Source of Energy

- U.S. Energy Information Administration (EIA).(2022, March).Levelized Costs of New Generation Resources in the Annual Energy Outlook 2022. Table 1b. Estimated unweighted levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) for new resources entering service in 2027 (2021 dollars per megawatt hour).

## Uranium: Government Support for Nuclear Energy

- IAEA (2023, October) IAEA Annual Projections Rise Again as Countries Turn to Nuclear for Energy Security and Climate Action.
- Office of Nuclear Energy (2023, September) Inflation Reduction Act Keeps Momentum Building for Nuclear Power .
- Bloomberg( 2023, April). China Nuclear Chairman Sees Sevenfold Surge in Capacity by 2060.
- Bloomberg (2023, March 30). EU Agrees Nuclear Has Role in Meeting Ambitious Climate Goal.

## Uranium: New Nuclear Reactors as a Proxy for Uranium Demand

- World Nuclear Association. ( 2023, August) World Nuclear Power Reactors & Uranium Requirements.
- World Nuclear Association. ( 2023, July) Small Nuclear Power Reactors.