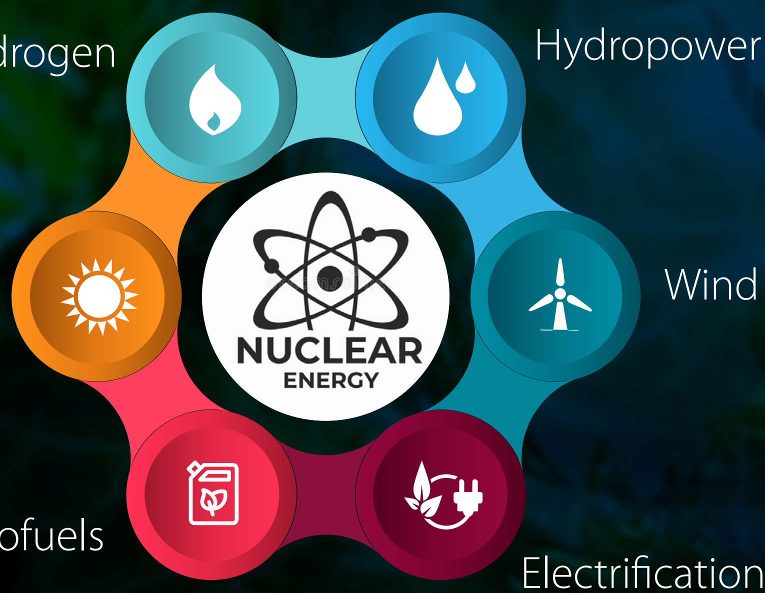
Portland Investment Counsel®
Buy. Hold. And Prosper.®

PORTLAND REPLACEMENT OF FOSSIL FUELS ALTERNATIVE FUND

World Energy Solutions

A mix of renewables. With **nuclear** at the core. **Always on. Energy dense. Reliable.**



The global demand for energy

- Energy plays a fundamental role in the economic development of nations worldwide.
- Global demand for energy is increasing rapidly, driven by population and economic growth, especially in emerging market economies.
- In the 20th century the world population grew 4 times, economic output 22 times and fossil fuel consumption 14 times.[1]
- U.S. Energy Information Administration projects ~50% growth in global energy consumption between 2018 and 2050.
- Fossil fuels supplied over 83% of the total world energy in 2021.[2]
- As the demand for energy rises, carbon dioxide emissions follow suit. Recent data shows carbon dioxide emissions reaching all time highs in 2022.
- Geopolitical risks and events bring rise to energy security concerns, risks become more prominent as more consumers require ever more energy resources.

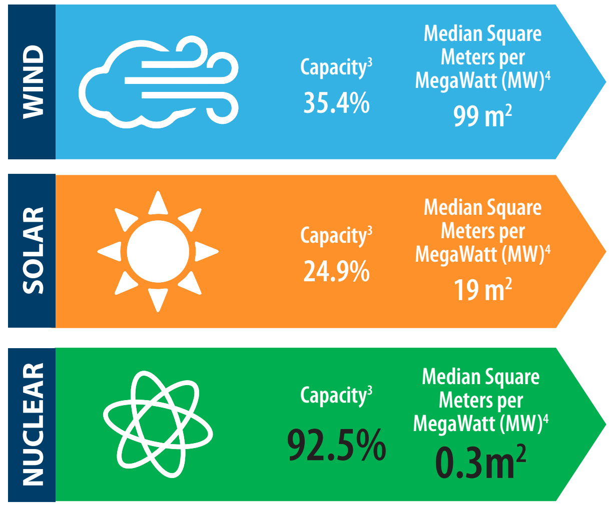
Historically, 1% of GDP growth has required 1.2% growth in energy consumption

Renewables have limitations

Renewable energy sources such as solar and wind have gained popularity in recent years due to their perceived environmental benefits and potential to reduce dependence on non-renewable energy sources.

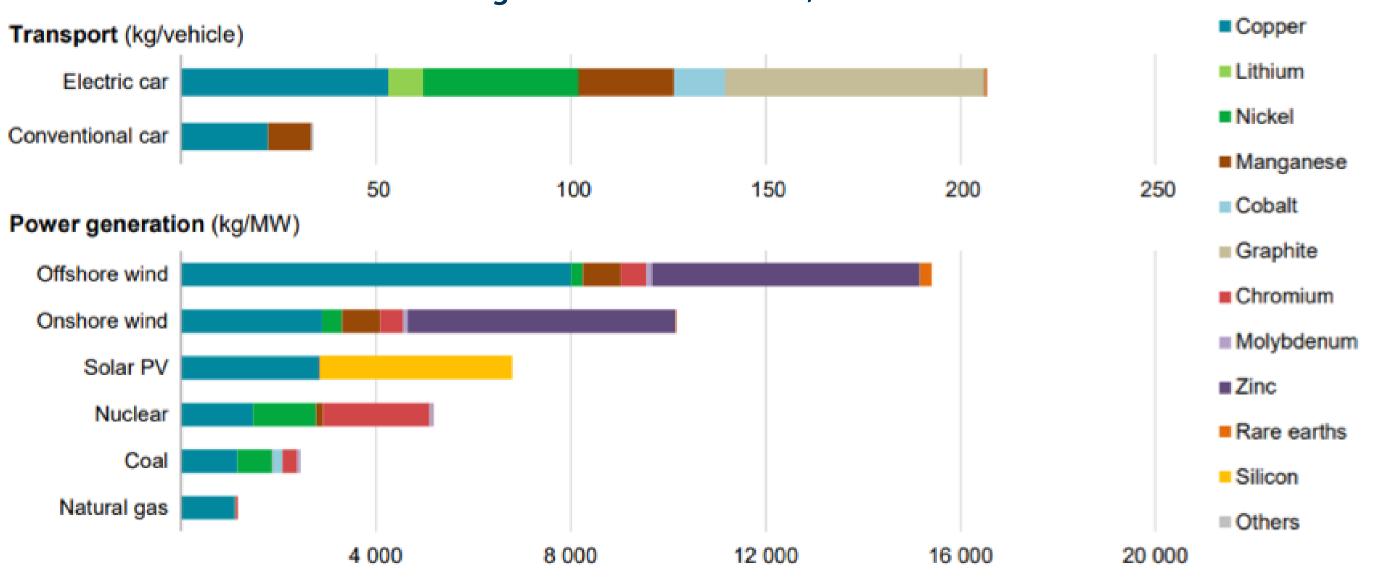
However, like any other energy source, they also have limitations:

- **Intermittency:** Solar and wind are dependent on the weather and the time of day, relying on when the sun shines or when the wind blows. This makes it challenging to rely solely on these sources for energy.
- **Limited energy efficiency:** Due to intermittency challenges, renewables like wind and solar offer the lowest energy capacity factor ranging between 25% and 35%.
- **Energy storage:** Since solar and wind power are intermittent, energy storage is necessary to ensure a constant supply of power. However, current energy storage technologies are expensive and have limited capacity.
- **Resource requirements:** Solar and wind chew up more resources as they require more complicated minerals than fossil fuels or nuclear.
- **Land use:** Renewable energy infrastructure requires significant land use. Solar farms require large areas of land to accommodate solar panels and wind turbines require large open spaces to generate power, where their placement could impact wildlife habitats.
- **Infrastructure limitations:** Renewable energy infrastructure requires significant investment in transmission and distribution infrastructure to move the energy generated to where it is needed. This can be a challenge in remote areas, where the cost of building new infrastructure is high.



Despite record breaking energy transition investments of over a trillion dollars in 2022, renewables only make up 11% of today's energy mix.[2]

Minerals used in clean energy technologies compared to other power generation sources IEA, Paris[5]



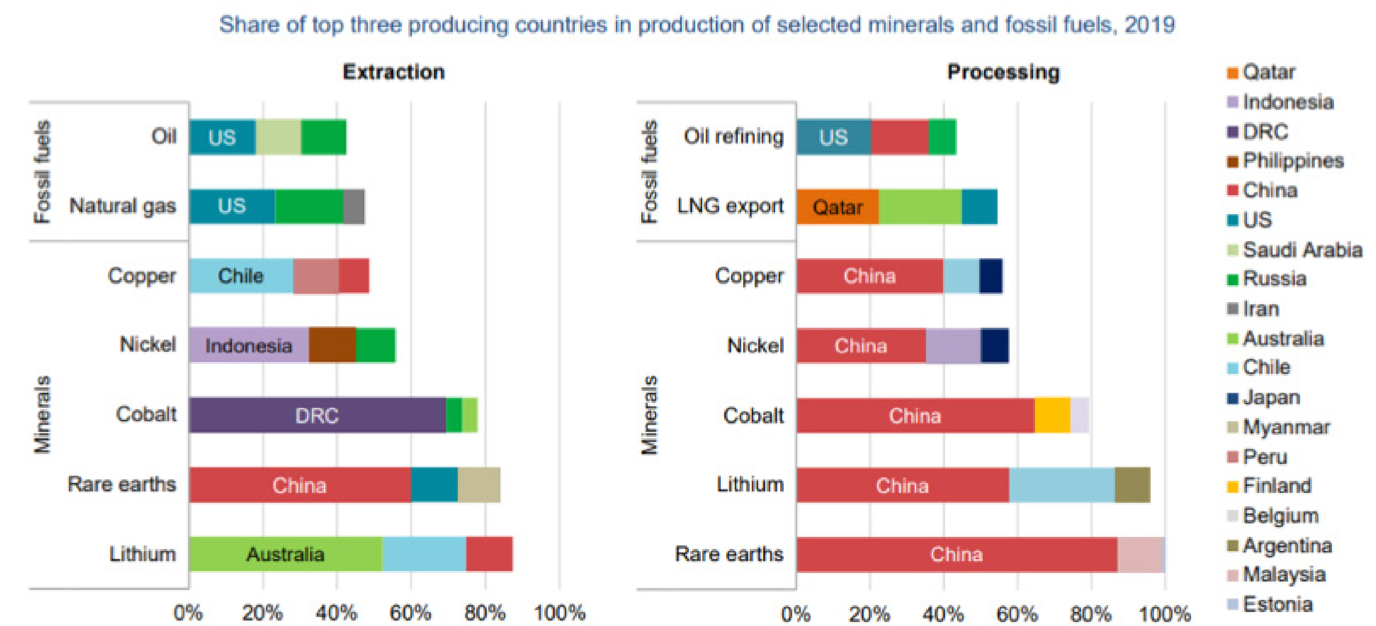
Batteries have limitations

Electrification* and renewable energy rely heavily on batteries.

Despite significant technological improvements, batteries continue to face many challenges:

- **Energy Density:** Batteries still lag behind fossil fuels in terms of energy density. Batteries can store less energy per unit of weight compared to gasoline.
- **Lifespan:** Batteries have a limited lifespan, degrading over time, reducing their capacity and performance. As batteries degrade, they need to be replaced, which can be costly and environmentally unfriendly.
- **Raw Material Dependency:** Batteries require large amounts of raw of materials including lithium, nickel and cobalt. Mining for these materials bring rise to climate, environmental and human rights challenges.
- **Raw Material Availability:** As demand for batteries increases, supply constraints and challenges for lithium, cobalt, and nickel would likely arise.
- **Environmental Impact:** Production of batteries requires significant amounts of energy which can result in carbon emissions and other pollutants. Additionally, the disposal of batteries at the end of their life cycle can be environmentally damaging if not handled properly.
- **Difficult to Recycle:** To recycle batteries, a high-temperature melting-and-extraction (smelting) process similar is required. Smelting is an energy intensive process.

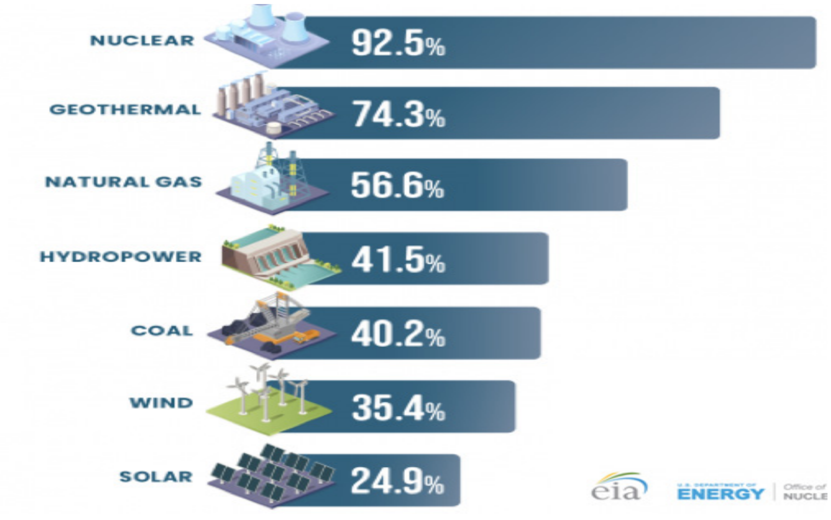
**charging with electricity*



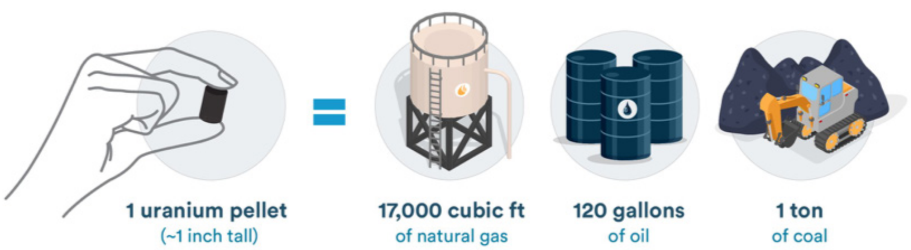
Minerals used in clean energy technologies compared to other power generation sources IEA, Paris[5]

Nuclear today

Capacity Factor by Energy in 2020[6]

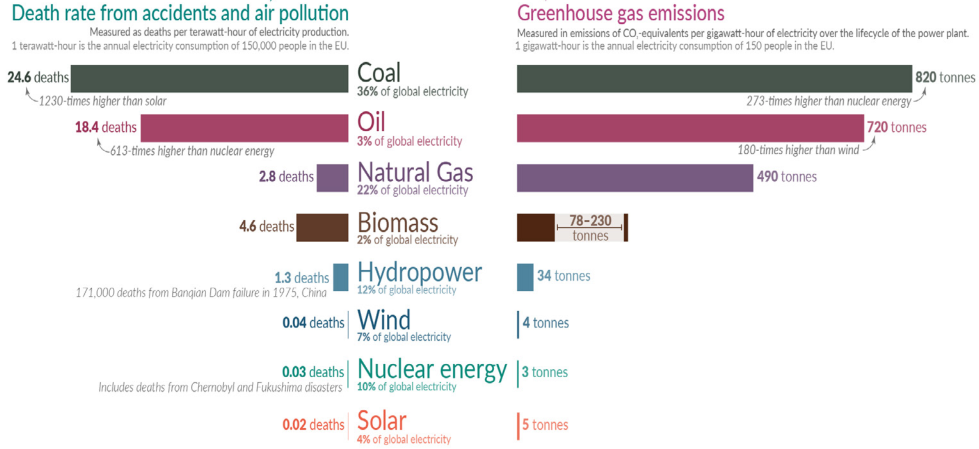


Nuclear Fuel is Extremely Energy Dense[7]



U.S. DEPARTMENT OF ENERGY | Office of NUCLEAR ENERGY   LEARN MORE energy.gov/ne   Data source: U.S. Energy Information Administration

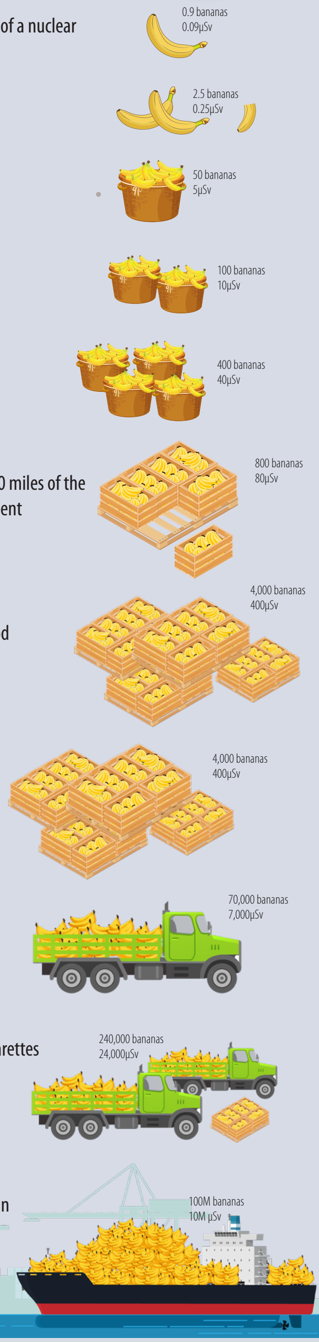
What are the safest and cleanest sources of energy[8]



Death rates from fossil fuels and biomass are based on state-of-the art plants with pollution controls in Europe, and are based on older models of the impacts of air pollution on health. This means these death rates are likely to be very conservative. For further discussion, see our article: OurWorldinData.org/safest-sources-of-energy. Electricity shares are given for 2021.
Data sources: Markandya & Wilkinson (2007); UNSCEAR (2008; 2018); Sovacool et al. (2016); IPCC AR5 (2014); Pehl et al. (2017); Ember Energy (2021).
OurWorldinData.org – Research and data to make progress against the world's largest problems.

Before you let radiation drive you bananas...

Eating one average-sized banana is equivalent to **0.1 microsieverts**.



Living within 50 miles of a nuclear power plant for a year.	0.9 bananas	0.09μSv
Airport security scan	2.5 bananas	0.25μSv
Dental X-ray	50 bananas	5μSv
1 day on Earth	100 bananas	10μSv
Transatlantic flight	400 bananas	40μSv
Average dose within 10 miles of the Three Mile Island accident	800 bananas	80μSv
6 months of eating food	4,000 bananas	400μSv
Mamogram	4,000 bananas	400μSv
Chest CT Scan	70,000 bananas	7,000μSv
Smoking a pack of cigarettes a day for 1 year	240,000 bananas	24,000μSv
Fatal dose, death within 2 weeks	100M bananas	10M μSv

Considering radiation (and bananas), it is important to take into account both the dosage and duration. While it is possible to consume over 1000 bananas throughout one's lifetime, consuming them all in a single afternoon would be highly unlikely.

The Need for Nuclear Energy

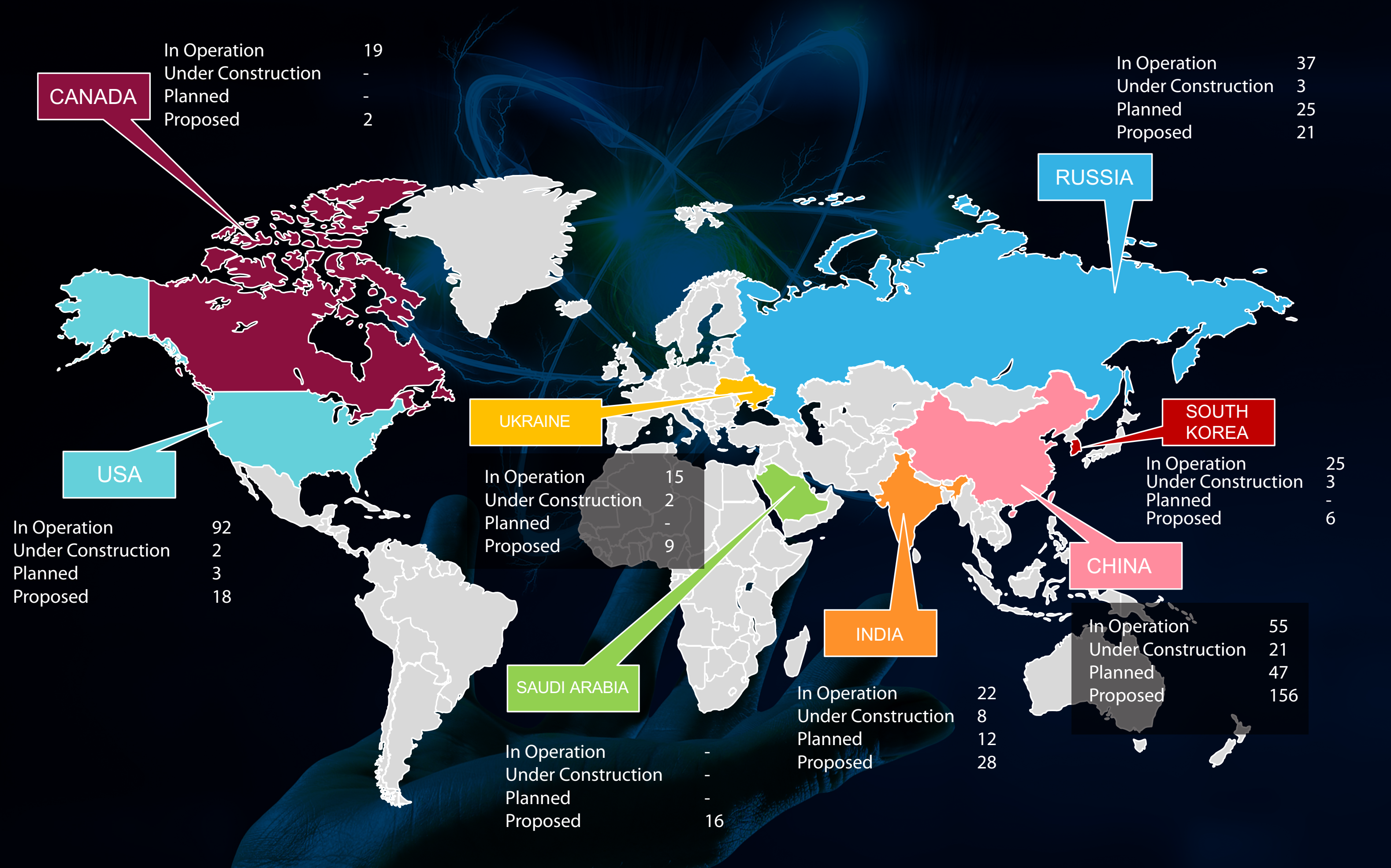
- In 2021, 438 operational reactors provided ~10% of the global electricity supply.
- Existing plants are beginning to close, ~25% nuclear capacity are expected to be shut down by 2040. ~**215 new large scale reactors** would be required to maintain existing nuclear capacity worldwide.
- Portland estimates (with International Energy Agency projections), an additional ~ **550 new large scale reactors** are required to achieve a net zero emissions by 2050.

More than US$3 trillion investment would be required for 550 new nuclear projects over the next 25 years.

An ambitious target, is it feasible?

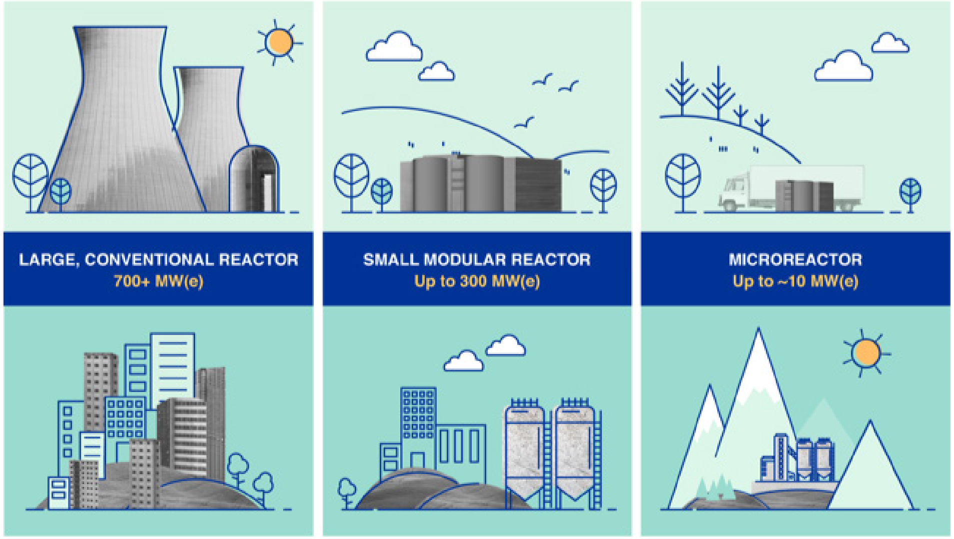
- On average, it can take 10 years to build a new large scale nuclear reactor. Extended timelines could impede the meaningful impact.
- Therefore small modular reactors (SMRs) and micro modular reactors (MMRs) will play an important role in the nuclear renaissance.

Status of Large Scale Nuclear Power Reactors[9]



SMRs: An Introduction

- SMRs are advanced nuclear reactors.
- Designed to be built at a smaller size but in larger numbers.
- Range in power output from micro (5-10 MW) to small (300 MW).
- Over 80 SMR designs under development in 19 countries, with first SMR units in operation, in China and Russia.



Source: International Atomic Energy Agency

Misconceptions of Nuclear

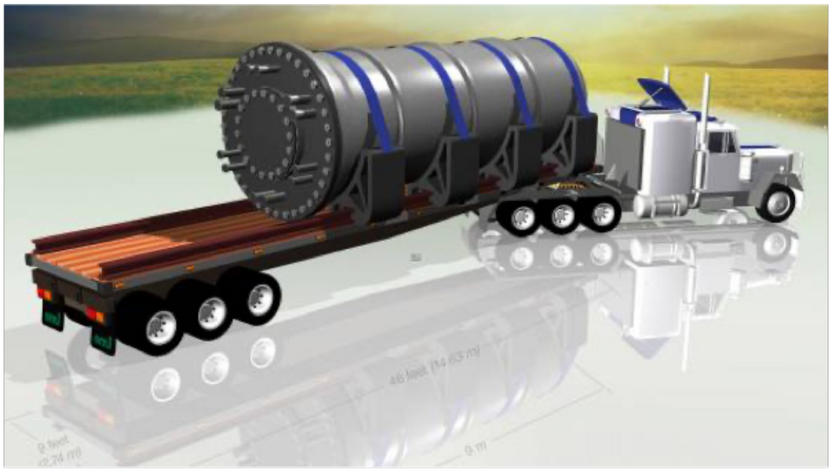
Nuclear energy has been subject to many misconceptions due to its association with the risks of nuclear accidents, nuclear weapons and nuclear waste.

Due to past incidents, we consider the industry as one of the most regulated sectors within the energy sphere that is subject to rigorous regulation at both the international and national levels.

All energy sources have negative effects, fossil fuels are the dirtiest and most dangerous, while nuclear is safer and cleaner.

SMRs are designed to be:

- **Small** - fraction of the size of conventional nuclear power reactors.
- **Modular** - factory-assembled and transported as a unit for installation.
- **Reactor** – harness nuclear fission to produce electricity, heat and high quality steam.[11]



A Rolls Royce reactor module, one of the many SMR designs currently being developed, on a truck. Many such modular reactors are designed to be small enough to transport by truck or shipping container.

Source: International Atomic Energy Agency

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PORTLAND REPLACEMENT OF FOSSIL FUELS ALTERNATIVE FUND

Nuclear Value Chain

OPERATING ASSETS

- Nuclear Focused Utilities
- Small Modular Reactors
- Micro Modular Reactors
- High Temperature Applications

NUCLEAR FUEL CYCLE

- Mining & Milling
- Conversion
- Enrichment
- Fuel Fabrication
- Uranium: Physical Commodity Exposure

ALTNERATIVE ENERGY & SOLUTIONS

- Hydrogen
- Fuel Cells
- Electrolyzers
- Carbon Capture
- Smart Grid Technology

NUCLEAR PLANT CYCLE

- Design
- Build
- Maintenance and Refurbishment
- Decommissioning
- Waste Management

Portland Holdings' Path to All Things Nuclear

OCTOBER 2018
Portland Investment Counsel Inc. launches ITM AG Investment Trust, a fund that invests in ITM Isotope Technologies Munich SE, a medical radioisotope supplier and drug developer

MAY 2019
International Centers for Precision Oncology Foundation (ICPO) is formed and Michael Lee-Chin is one of founding members

JUNE 2019
Michael Lee-Chin appointed to the supervisory board of ITM Isotope Technologies Munich SE

JULY 2019
Portland Investment Counsel Inc. leads investment in Telix Pharmaceuticals Limited via private placement

MAY 2020
Michael Lee-Chin is appointed as an advisory board member of OncoBeta International GmbH

NOVEMBER 2020
Portland Investment Counsel Inc. launches OncoBeta Investment LP, a fund that invests in OncoBeta International GmbH, a privately held medical device company

APRIL 2021
Portland Investment Counsel Inc. launches Portland Life Sciences Alternative Fund

JULY 2021
AIC Global Holdings Inc.* appoints Business Development Manager to the Life Sciences Team

AUGUST 2021
AIC Global Holdings Inc.* appoints Chief Scientific Officer, Chief Medical Officer

SEPTEMBER 2022
AIC Global Holdings Inc.*, signs a Memorandum of Understanding to collaborate with Canadian Nuclear Laboratories (CNL)

DECEMBER 2022
AIC Global Holdings Inc.* appoints Chief Nuclear Officer

DECEMBER 2022
Portland Holdings Investco Limited* signs a Memorandum of Understanding with Ultra Safe Nuclear Corporation (USNC)

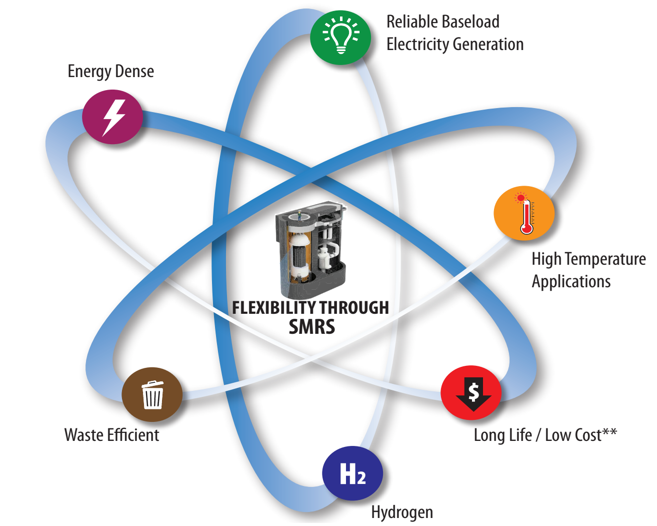
APRIL 2023
Portland Holdings Investco Limited* and United Arab Emirates-based MBM Holding of Dubai sign an MOU

MAY 2023
Portland Investment Counsel Inc. launches Portland Replacement of Fossil Fuels Alternative Fund

NOVEMBER 2023
Portland Holdings Investco Limited launches the institutional-focused Luxembourg-based alternative investment fund "Portland Clean and Nuclear Energy S.L.P."

*Portland Investment Counsel Inc., and AIC Global Holdings Inc. are subsidiaries of Portland Holdings Limited
Portland Holdings Investco Limited and Portland Holdings Limited are controlled by Michael Lee-Chin

The Case for Nuclear



***Measured by the lifetime costs divided by energy production*

Fund Features of Portland Replacement of Fossil Fuels Alternative Fund

- Portland Replacement of Fossil Fuels Alternative Fund is a prospectus offered alternative mutual fund.
- CIFSC[12] category of Alternative Equity Focused.
- Fund is expected to be U.S./North American centric.
- Registered Plans eligible.
- Portland Replacement of Fossil Fuels Alternative Fund is rated as Medium risk.
- Management fee from 0.75% per annum for Series F units.

Potential Risks

Portland Investment Counsel Inc. believes the following risks may impact the performance of the Fund: Concentration risk, commodity risk, nuclear energy and sustainable energy sector investment risk, geopolitical risk, energy crisis risk, specialization risk, currency risk and equity risk. Please read the "What are the risks of investing in the Fund?" section in the Simplified Prospectus for a more detailed description of all the relevant risks.

Reference:

1. United Nations Environment Programme, 2011
2. https://ourworldindata.org/energy-mix
3. U.S. Energy Information Administration (March 2021)
4. https://ourworldindata.org/land-use-per-energy-source
5. https://www.iea.org/data-and-statistics/charts/minerals-used-in-clean-energy-technologies-compared-to-other-power-generation-sources, IEA. Licence: CC BY 4.0
6. U.S. Energy Information Administration (March 2021)
7. U.S. Department of Energy (July 2022)
8. https://ourworldindata.org/nuclear-energy#:~:text=A%20death%20rate%20of%200.04,50%20years%20would%20someone%20die
9. World Nuclear Association; https://world-nuclear.org/
10. https://www.iaea.org/newscenter/news/infographic-what-makes-nuclear-energy-safe
11. https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs
12. Canadian Investment Funds Standards Committee

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