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# Nuclear energy – our approach for investments



## What is nuclear energy?

Nuclear power plants generate energy by splitting uranium atoms. This energy is used to heat water, produce steam and generate electricity. The main benefit of a nuclear power plant is that it can provide a reliable baseload of electricity without generating carbon emissions. It is also a very efficient energy source that requires limited amount of land mass compared with renewables. Electricity from nuclear has fallen from 20% in the 1990s to around 10% today, largely because of declining policy support and investment. High capital costs, combined with limited policy support, low carbon prices and low fuel prices, make it difficult for nuclear power to compete. These are among the issues driving this decline:

### 1. Ageing fleet

Many of today's nuclear power plants were built in the 1970s and 1980s and are facing decommissioning or lifetime extensions – a much cheaper alternative to new construction.

### 2. Construction complexity and costs

The design and construction of a new nuclear power plant often take several years, and capital costs are very high. The last decade has seen major construction delays and cost overruns in nuclear projects, and investors are hesitant to mobilise billions in upfront investments.

### 3. Health and safety concerns

The waste generated by nuclear reactors remains radioactive for thousands of years. The liability for that waste is a major issue. There is no long-term storage solution for radioactive waste yet, and most is stored in temporary facilities. In addition, an accident in a nuclear power plant could release radiation into the environment, leading to damaged body cells and potentially cancer and death. Chernobyl (1987) and Fukushima (2011) are two major examples.

### 4. Sourcing of raw materials

Uranium and, in some cases, plutonium are the main raw materials used by nuclear plants for fission. These raw materials are finite and are mined in a few countries. Uranium is relatively expensive to mine, refine and transport. In addition, the mining of uranium is quite energy intensive, which has to be considered in the lifecycle emissions of nuclear power generation.

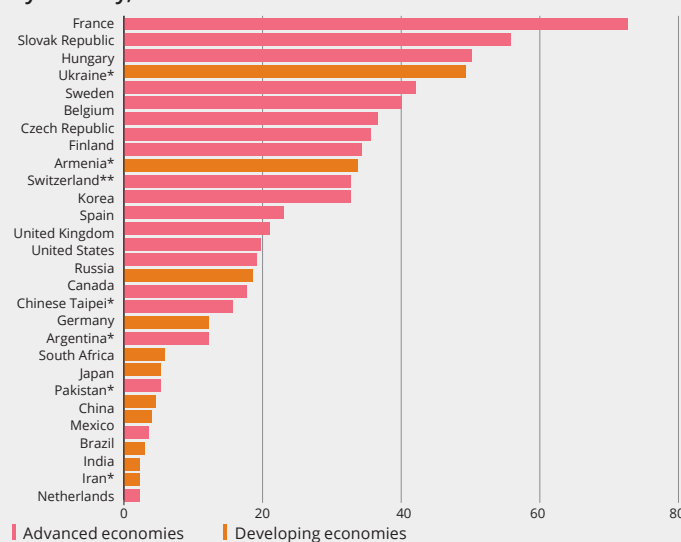
### 5. National security concerns

Nuclear power plants are potential targets for terrorist operations. An attack could cause major explosions, putting population centres at risk. There is also concern about the abuse of nuclear power for the construction of nuclear weapons.

## A divided policy landscape

The issues above are reflected in divided political support for nuclear energy. While some countries have committed to decommissioning nuclear energy, such as Germany, Belgium and Spain, or to reducing its usage, such as Korea, others believe that it has a role to play in the energy transition to provide reliable base-load energy. These include France, the US, Japan and China.

Chart 1 - Share of nuclear power in total electricity generation by country, 2018



IEA (2009). All rights reserved.  
\* 2016 Data.  
\*\* 2017 Data.

**European Union** – Some European countries, such as France, are heavily reliant on nuclear power. But the direction of the EU is moving away from supporting nuclear energy. Solutions aligned with the EU taxonomy for sustainable investments need to meet the criterion 'do not harm', and that currently excludes nuclear power.

**United States** – The US's long-term energy strategy is committed to nuclear, but there has been a reduction in nuclear investments as a result of other energy sources being financially more viable, such as renewables and gas.

**China** – China's energy policy is to increase nuclear power to help reduce the reliance on coal-fired power stations. This is where we are seeing the highest construction rate of nuclear power plants, which is expected to be a key driver for growth in nuclear power globally.

<sup>1</sup> <https://www.world-nuclear.org/information-library/country-profiles/countries-g-n/japan-nuclear-power.aspx>.  
<sup>2</sup> <https://www.iea.org/reports/nuclear-power-in-a-clean-energy-systemnuclear-power.aspx>.

**Japan** – Japan is heavily reliant on imports to meet its energy requirements. It focused on the use of nuclear power until the Fukushima nuclear accident in 2011, which led to public protests against nuclear. Japan’s current energy strategy sees nuclear as an important base-load power source contributing to the stability of energy supply<sup>1</sup> and aims to achieve 20–22% nuclear power by 2030.

The International Energy Agency (IEA) sees nuclear as an important part of the energy transition and states that ‘Without action to provide more support for nuclear power, global efforts to transition to a cleaner energy system will become drastically harder and more costly’.<sup>2</sup>

**Overall, countries envisaging a future role for nuclear energy account for the bulk of global energy demand and CO2 emissions.**

**Nuclear energy is therefore likely to remain part of the energy mix in a net-zero 2050 world, and growth, albeit limited, is expected in some developing regions.**

#### **Aberdeen Standard Investments’ approach to nuclear energy in our Investments**

**In our view, given the urgent need to reduce global emissions and focus on the goals of the Paris Agreement, carbon-intensive energy sources such as coal should be phased out as a priority. Reducing our reliance on nuclear energy should be a secondary, longer-term consideration, but the risks associated with nuclear energy need to be managed very carefully.**

Ideally, nuclear energy would gradually be replaced with other low-carbon energy sources such as renewables, but this will require technology advances that enable reliable and affordable energy supply with a large proportion of renewables in the mix. Affordable and reliable low-carbon energy supply must remain a priority. We do not expect countries to decommission nuclear energy in the short term and be driven to meet energy demand with more carbon-intensive sources. To reflect this view in our investments, we take the following approach:

#### **1. Regional risk assessment**

We recognise the difference in political support for nuclear energy across the globe and take this into account in our risk assessments. It is important to ask what viable alternatives to nuclear energy exist. These depend on a country’s access to natural resources, as well as on energy prices. New investments in nuclear power plants may be justified if energy demand is growing and cost-competitive energy alternatives are very carbon intensive. We seek to understand the implications of both continued nuclear investments and nuclear phase-out.

#### **2. Engagement**

When engaging with companies involved in nuclear energy, we seek to understand how the significant health and safety risks are managed and what development plans are in place for nuclear energy in line with regional policies. Companies must demonstrate strong management of risks and a clear understanding of the financial viability of continued investments in nuclear.

#### **3. Low-carbon solutions**

Nuclear energy is a reliable low-carbon energy source, but given its significant health and safety risks and varied policy support, it is not a solution that we would actively seek to include in a product focused on climate solutions. This may change as policy supports alters. However, where an investment focused on renewables also has nuclear in the energy mix, it would not be excluded from a product if a clear transition plan were in place to phase out nuclear.

#### **4. Exclusion**

In some of our funds, companies with exposure to nuclear are excluded on the basis of the considerable health and safety-related risks outlined in this note, particularly the issues related to radioactive waste. We offer an ethical screen to exclude nuclear exposure where this is desired.

#### **Responsible investing at Aberdeen Standard Investments**

As a leading global asset manager, we believe that investing responsibly can help generate long-term value for our clients. We offer an extensive and growing range of investment solutions, as well as the very highest levels of service and support.

When investing our clients’ capital, ESG considerations are an integral part of our decision-making. By understanding how ESG factors affect our investments, we believe we can generate better outcomes for our clients, society and the wider world.

To help us achieve this, our dedicated, 20-strong ESG Investment team works closely with colleagues across all asset classes to support this work. A further 30 dedicated ESG asset-class analysts provide an additional layer of expertise.

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