

Uranium – deal or doom

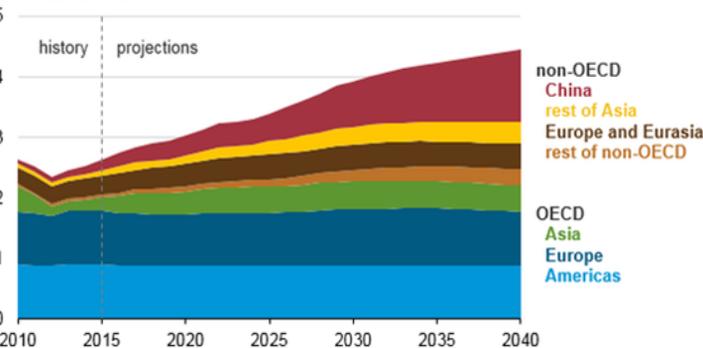
Introduction

Uranium is a traded commodity with two primary uses, military equipment and as fuel in nuclear power plants. One kilo of uranium can in theory produce as much energy as 1500 tons of coal with very limited direct environmental trace. The waste disposal in the form of depleted material is still a large issue. Another issue is the uncertainty surrounding the long term biological effects considering that it takes hundred of thousands of years before the most radioactive isotopes of uranium is safe to handle. This is still a better solution than that which was being used by some countries during the sixties and seventies where the radioactive waste was cast in concrete and dumped in the ocean. In military use, uranium can be found as fuel in nuclear powered sub-marines, as war heads in what commonly is known as atom bombs, and in high-density penetrators due to its high density. The US, Russia and France have stockpiles with several hundred tones of depleted uranium used primarily for armor penetrating ammunition. Since its use in the Gulf War there are still traces of radiation that can be found in Iraq, which is why the country has proposed that its use should be banned.

Supply

The four largest producers of uranium account for approximately 62% of the world's production as of 2015, while the nine largest firms are responsible for 89% of the total global production. The industry is also geographically concentrated with Kazakhstan being the largest producer at 40%. The second and third largest producers are Canada and Australia respectively, making up circa 70% of the global production. Production from mines makes up 94% of the production, while the remaining 6% is primarily reuse of existing uranium formally being used. Examples of sources of reuse is the German nuclear program and Japan's transition away from nuclear naval vessels. The once major commercially held excess stock has largely been used up, while USA and Russia yet maintain governmental stockpiles that could affect the market supply up to 20 years into the future.

Projected nuclear electricity generation in selected regions (2010-40)
trillion kilowatthours

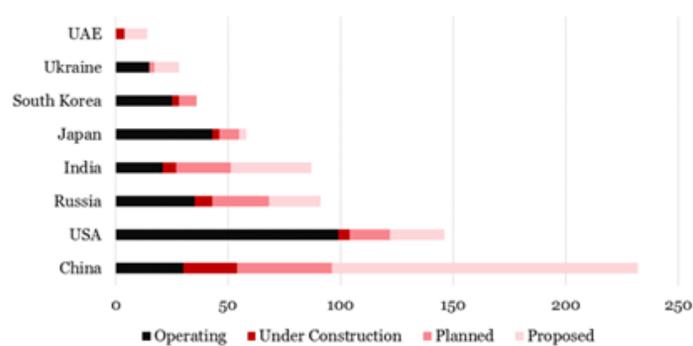


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Number of nuclear reactors



Source: World Nuclear Association

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Demand

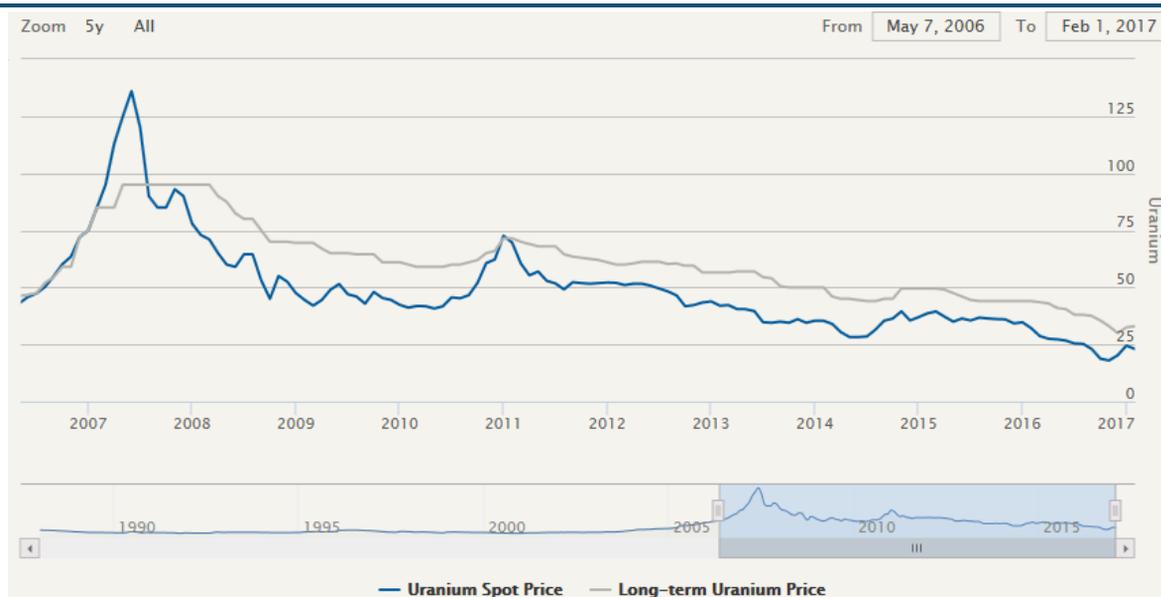
The increasing need for electricity (projected to rise 69% by 2040 according to the OECD report International Energy Outlook 2016) will be the driver behind the growing demand of electricity, specifically in the two most populous countries on the globe. China and India are already suffering from air and water pollution issues making fossil fuels a poor alternative for energy generation, nor has renewable energy proven to be cost effective, compelling them to turn to nuclear power.

According to the WNA (the World Nuclear Association) there are 447 operable nuclear reactors in 30 countries as of January 2016, supplying roughly 11% of the world's energy needs. There are 59 reactors under construction, with China being the leader with 24 reactors on the way. An additional 168 reactors are approved and twice that are proposed with a deadline of being operational by 2030. China makes up 64% of the net growth in nuclear generation capacities while India, Korea and Russia collectively make up an additional 24% of the net growth. While the outlook is overall positive in Asia, there is a likely stagnation or even a decrease in the European market. Germany and Italy both have pledged to decommission all their plants by 2022 in favor of renewable energy sources. The development in USA is harder to predict, but experts have interpreted many of President Trump's strategies as overall favorable for the nuclear industry.

Recent price development

The price of uranium has plummeted from the historic high in 2007 of \$137 to a bottom of According to some forecasts; the break even for existing mines is \$50 per pound, while the break even for new mines is in the \$70-\$80 per pound range. Due to the ten year contract used by many of the suppliers in the industry most of the mines are currently churning out large quantities despite suffering from evermore narrowing margins.

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This has led to a gradual production cut, headed by mines in Kazakhstan that underwent a production cut of 10% in the last year. This price drop is mainly attributed to a previous bubble in the price, and inventory buildup during the decades leading up to the year 2000, combined with increased use of secondary sources as discussed previously. The uranium price is published in two forms: spot price and long term price. The spot price is the current most competitive price that uranium can be traded for, while the long-term uranium price is the price which the long term contracts that the suppliers on average are able to charge when committing to deliver uranium continuously.

Risks

The undoubtedly biggest hurdle to achieving the promising growth is swaying public opinion surrounding the civilian uses of uranium. In the wake of the disastrous events of Fukushima in 2011 and Chernobyl in 1986 not yet wiped from public memory many associate nuclear power with potential disaster. This is less of a problem in countries where the public has limited say when it comes to policies, such as Russia and China, but pose a risk in the USA and Europe. Another risk could be big improvements in the efficiency of other means of energy generation, such as renewable energy.

Outlook

The outlook is generally believed to be positive on a long investment horizon. The nature of ten year contracts have led to suppliers being tied in to long contract, it has also meant that all nuclear facilities' needs are currently 100% supplied. By 2019 this number will drop down to only 20% having set contracts in place meaning that suppliers can renegotiate contracts to more favorable terms as the previous surplus stockpile is diminishing. WNA 2015 Nuclear Fuel Report predicts a 26% increase in demand by 2025. "With electricity demand by 2040 expected (by the OECD's International

Energy Agency in its *World Energy Outlook 2015* report) to increase 70% from that of 2013, there is plenty of scope for growth in nuclear capacity in a world concerned with limiting carbon emissions."

Ways to invest

There are fundamentally three ways to invest in uranium: stocks in industry companies, ETFs, and futures contracts. Some of the most prominent stocks are Uranerz Energy Corporation (NYSEMKT:URZ) which is a U.S.-based firm that engages in the mining and production of the element. Similarly, Uranium Energy Corporation (NYSEMKT:UEC) mines for the metal with a much more global reach, as it is based in Canada and does a fair amount of mining in Paraguay, AREVA (EPA:AREVA) is the second largest uranium mining company while Cameco Corporation (TSX:CCO) is the world's largest manufacturer. Studsvik (STO:SVIK) is a Swedish company that provides nuclear analyzing software and also storage to nuclear plants. Since buying physical uranium has its obvious drawbacks an ETF could be a good choice. Of those currently traded, the the majority can be found on the American market. Global X's Uranium ETF (URA) which tracks a basket of uranium miners. The Market Vectors Uranium+Nuclear Energy ETF (NLR) invests in companies from all around the world that are involved in the nuclear energy industry. There are also futures being traded on the Chicago Mercantile Exchange such as under the ticker UxC (CME: UX).

Conclusion

When you combine increasing demand from China, Russia, and India, a lack of supply and an upcoming round of contract negotiations, uranium prices seem to have a glowing future. This is however to be seen as a long term investment with a potential investment horizon of approximately 15 years or longer.