



This Little-Known Element Could Revolutionize the World's Energy Needs

Description

Named after the Norse God Thor, thorium might be the most important element you've never heard of.

Thorium is element 90 in the periodic table, producing a radioactive gas called radon-200 as one of its decay products. This element is abundant in the earth's crust, estimated to be three or four times more plentiful than uranium. It has a silvery finish, often with a black tarnish.

Oh, and it could very well be the planet's most important future energy source.

So far, we haven't been able to harness thorium's great energy potential. Many nations have experimented with using thorium as an alternative fuel in nuclear reactors, without a whole lot of success. The International Atomic Energy Agency began research on the element in 1996, but didn't really get anywhere with it.

India, which is home to about a third of the world's known thorium reserves, has been by far the most aggressive nation in developing this technology. Current efforts have been marginally successful, and scientists there claim to be on track to have a test reactor that uses thorium as a fuel operational by 2016. Once it's completed, India plans to build five more.

The United States has the second-largest amount of thorium reserves. Nuclear scientists estimate that the United States has enough thorium in its soil to ensure all of its power needs for the next 10,000 years, and that's not even counting the reserves in Canada, which are estimated to be the fourth-largest in the world. If scientists can get this right, thorium power could be the biggest innovation in generations.

In the late 1960s, U.S. scientists actually built a working thorium reactor, but the project was shelved by the Nixon administration. The reason? It wanted the plutonium residue from uranium to bolster its collection of nuclear bombs. At this point, the United States is largely ignoring thorium as a potential power source.

What exactly makes thorium so attractive? Well, it's safer, cleaner, and potentially more efficient than uranium. It's also much more difficult to use in nuclear weapons, reducing the need for security around

supplies of the mineral. It's actually been around for years, but as an annoying byproduct of heavy metal mining. The United States has buried tons of the stuff. There's an ample supply practically ready to go.

The other huge plus for thorium is that the reaction can be done at regular pressure, at a smaller scale, and without the giant structures needed to react uranium in the same way. Small reactors could, in theory, be built in every small town or camp, taking up a fraction of space currently dedicated to current power plants.

A race has developed to produce the world's first working thorium reactor. In Shanghai, the Chinese government has assigned 140 of its top nuclear scientists to its reactor project, with plans to expand numbers to 750 by 2015. The government has already committed \$350 million to the project. India has its aforementioned project, and even the U.K. is researching it.

What does this all mean?

The disaster at Fukushima soured many nations' views on nuclear power. Japan originally stated it wouldn't allow any new nuclear plants to come online after the disaster, but has since softened its stance as reality has set in: The nation simply does not have any alternative power sources.

Germany has actually followed through on its commitment to shelve all plans for additional nuclear power in its country, and France is looking to take steps to shut down some of its oldest reactors.

Nuclear power is a terrific source of energy. Reactors have become so efficient that they produce very little nuclear waste. Carbon dioxide emissions from nuclear plants are next to nothing. There are just a couple of big problems.

Firstly, nuclear reactors need to be so thick that they're very costly to build. And while the technology works really well most of the time, there's still the possibility of something really bad happening.

If thorium ends up replacing uranium as the go-to nuclear fuel, it could very well signal the beginning of the end for **Cameco** ([TSX: CCO](#))([NYSE: CCJ](#)), Canada's largest uranium miner. And unless other power generators like **Transalta** ([TSX: TA](#))([NYSE: TAC](#)) and **Fortis** ([TSX: FTS](#)) embrace the fuel, its potential could quickly cause these companies major problems, especially if thorium reactors are considerably cheaper than traditional sources of power.

Thorium is years away from being a realistic source of energy, but it has potential to be the world's next superfuel. It could end up making investors an untold amount of money. Something with this much potential deserves at least some of your attention.

CATEGORY

1. Investing

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