

NUCLEAR: Mighty Thorium

By Jeff Sanford

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It was only three years ago that the nuclear industry seemed to be powering down in the western world. A new plant hadn't been built in North America in 30 years, while over in Europe the German government had adopted a plan to mothball its reactors by 2025.

What a difference a couple of years makes. Last year, Ontario announced it will build North America's first nuclear plants in a generation, while the International [Atomic] Energy Agency is urging Germany to keep its reactors running. Concerns about global warming and the sustainability of a fossil-fuel economy have restored the luster to this relatively carbon-neutral, domestically supplied form of power.

Indeed, industry talk now is about managing a renaissance that has the likes of India, China and Bulgaria building new plants. And the price of uranium has jumped tenfold to more than \$130 per pound over the past four years as investors speculate on a build-out of nuclear power that will dwarf the boom of the '70s.

But the original worries about uranium-fuelled reactors – core meltdowns and weapons proliferation – are still with us. Plus, precious uranium supplies are dwindling. If only there was some other fuel we could use – one that was difficult to turn into a weapon, less likely to melt down and more common.

There is. It's called thorium, and it's found in just two places to the left of uranium on the periodic table. More importantly, it's commonly found all over the world – soil, for example, contains six parts per million of thorium on average – and is considered safer than uranium. Best yet, some fuel designs produce 85% less plutonium than standard uranium, meaning it's much harder to make a bomb with it.

"It's like switching from leaded to unleaded gasoline," says Seth Grae, the CEO of Thorium Power, a McLean, VA-based company developing a thorium-based nuclear fuel supply. "The first nuclear build-out in the '70s was in a very different world than the world we're about to see in nuclear power. It's not sustainable to deploy hundreds of new uranium-based nuclear plants into the developing world."

Unfortunately for Canada, Thorium Power's product is designed for light-water reactors, which means heavy water Candu reactors won't be able to switch to the new fuel. But for everyone else "thorium is a logical way to go," says Grae.