



Creating a multi-national development platform: Thorium energy and rare earth value chain

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Rare earths and thorium are linked at the mineralogical level. Changes in thorium regulations and liabilities resulted in the development of excessive market concentrations in the rare earth value chain. High value monazite rare earth resources, a by-product of heavy mineral sands mining, constituted a significant portion of global rare earth supply (and nearly 100% of heavy rare earths) until legislative changes, interpretation and enforcement regarding “source materials” in the early 1980s eliminated these materials from the supply chain.

Thorium bearing rare earth by-products from existing non-rare earth mining operations outside of China could potentially meet or exceed global rare earth demand if the existing ‘thorium problem’ is resolved.

A recently introduced bill in the United States Congress resolves the ‘thorium problem’ and is structured to create a fully integrated rare earth value chain structured as a multi-national rare earth cooperative.

The presentation will outline the structure and objectives of the legislation that are intended to:

1. utilizing better utilize existing and available rare earth resources;
2. create a Federally Chartered Rare Earth Cooperative (and Thorium Corporation);
3. establish a full value chain for rare earth metals, alloys, magnets and components; and
4. outline that this can/will be funded and owned by multi-national corporations, defense contractors, allied nation agencies, and organizations

More importantly, the bill also creates a federally chartered Thorium Energy and Industrial Products Corporation that will take and hold all thorium and related actinide liabilities from the Rare Earth Cooperative, its owners and its suppliers.

The Thorium Corporation will be given Congressional authority to establish a multi-national corporate platform:

1. to develop industrial uses and markets for thorium (including decay products) that include
 - a. alloys
 - b. catalysts
 - c. medical isotopes
2. for the commercial development of thorium energy systems, that include



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- a. solid fuels from thorium
- b. solid fuel reactor technology
- c. liquid fuel reactors technology, including
 - i. electric power
 - ii. thermal energy
 - iii. liquid fuel production
 - iv. desalination
 - v. nuclear waste reduction (actinide burners)
 - vi. hardened and deployable energy systems.

Abstract: The above paper was presented by James Kennedy at the International Symposium on Uranium Raw Material for the Nuclear Fuel Cycle to the United Nations IAEA membership in Vienna Austria: **URAM**-June 2014.

The full paper will be published by the IAEA later this year or early 2016.