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Rare Earth Element Supply Chain: China's Chokehold Creates a Dangerous US Dependency

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If supply lines linked to China are disrupted, there is **no other alternative source that could adequately supply** the US with critical REE consumption.

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My research journey

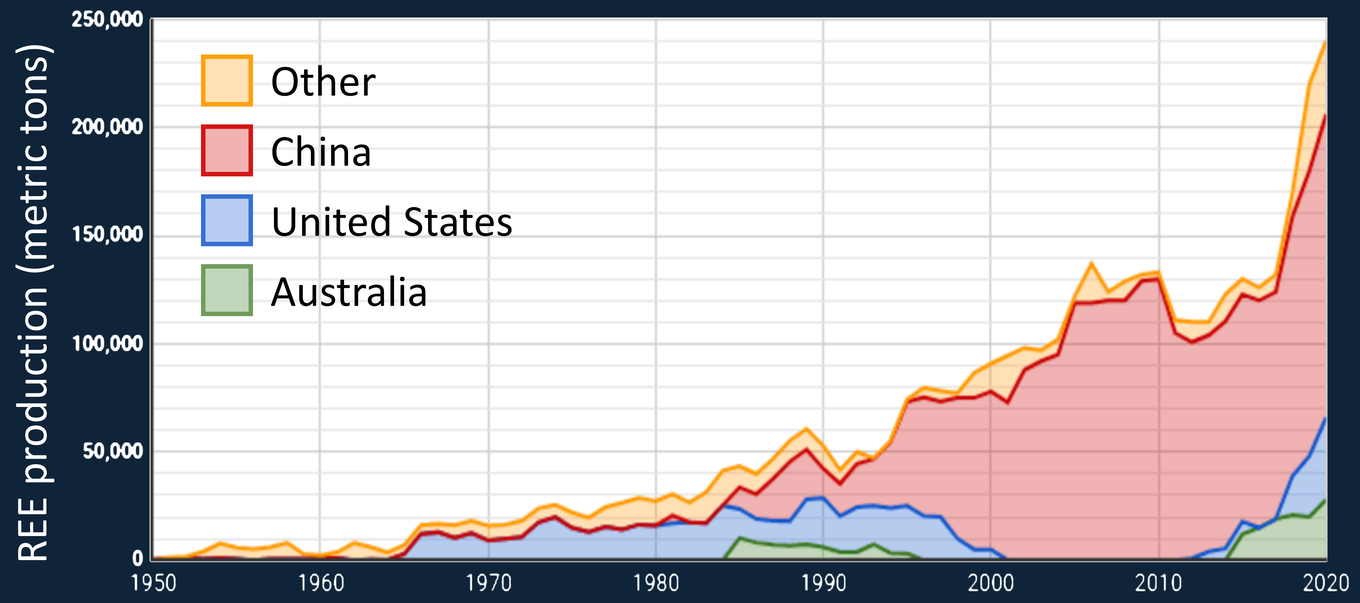
The COVID-induced supply chain crisis heightened my awareness of US vulnerability in this sector. Because REEs are essential to the US economy and tech sector, the prospect of a China-led weaponization of the supply chain, due to rising US-China tensions, became apparent. Legislatures are instrumental in order to mitigate this threat.

Rare earth elements

Rare earth elements (REE) are a set of seventeen metallic elements, and they are necessary components of a wide range of high-tech consumer products.

REE have become the lynchpin of modern technology for the US economy and military. The REE supply chain feeds into a wide array of industries in the US, from consumer products to military defense technology. Supply chains dependent on REE are held in a chokehold by China, which holds a near monopoly of REE extraction and manufacturing worldwide.

Rare earth element production from 1950 to 2020



The clear increase in global REE demand due to technology modernized is apparent. The US is clearly seen entering the market in the mid 1960s, with China beginning to sell lower priced REE in the 1980s. Following the 2010 Japan-China conflict resulting in China cutting REE exports, a clear rise in REE production outside of China by worried countries is clear.

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Risk mitigation

Supply chain resilience could be achieved with:

- **Increased domestic REE extraction** and processing to onshore supply chains.
- **Strengthened relations with nations** having REE mining capabilities by offering political and economic support.
- **Increased research and development efforts** to employ alternative methods to acquiring REE or finding REE substitutes.

Mitigation efforts would **protect Utah's emerging tech sector**, Utah's military-oriented sector such as Hill Air Force Base, Northrup Grumman, and BAE Systems, and would prevent Utah's clean energy efforts from being stopped.

China dominates REE processing at almost every stage and has built a global empire of the industry on which the US economy and defense strategies depend on.

Looking ahead

I am currently exploring US port resilience against increasingly complicated cyberattacks, and how vulnerabilities within the system could significantly damage US economic strength.