



Rare Earth Elements: Challenges to a Secure, Stable Supply Market

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LATE NEWS FLASH...

- ❖ The World has changed.
- ❖ The United States is no longer the center of the Universe.
- ❖ Continued reliance on a single supplier for Rare Earth Elements could increase the risk of supply disruptions and price spikes for US companies using Rare Earths

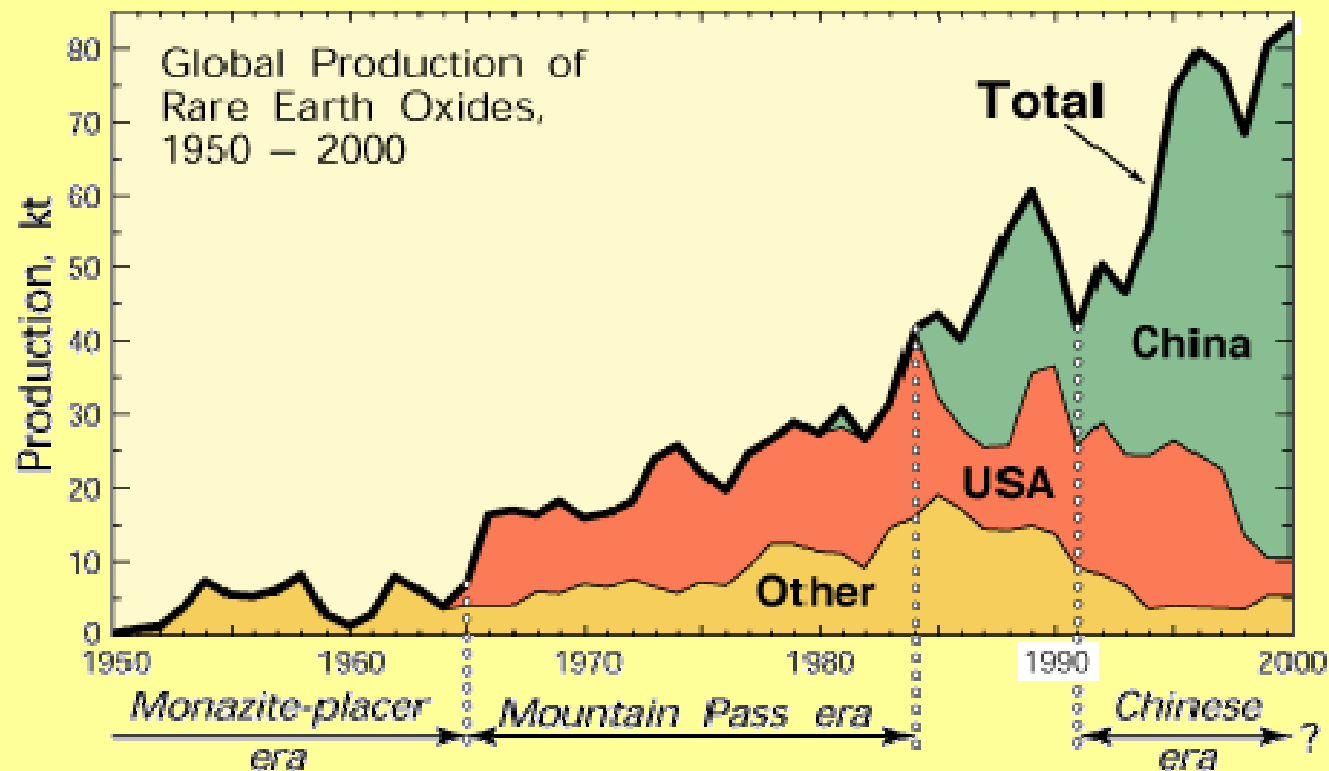


Welcome to the Brave New World

- ❖ The success of US efforts to reduce oil import dependence may hinge on achieving a stable, secure supply of Rare Earth Elements for use in “clean tech applications”
- ❖ We are all in this little canoe together.



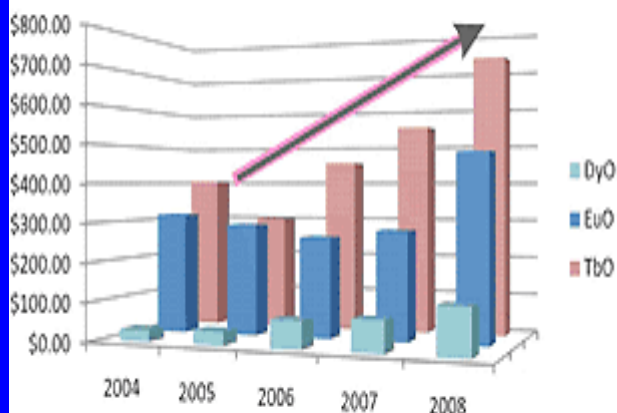
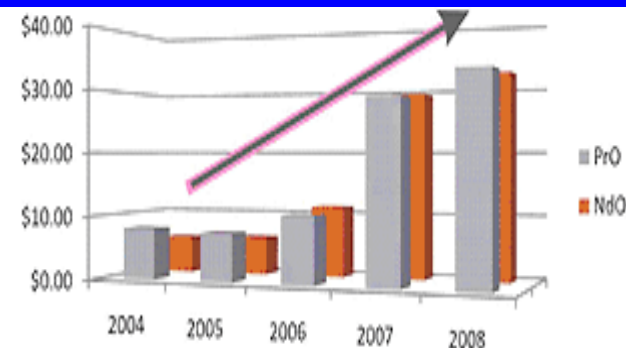
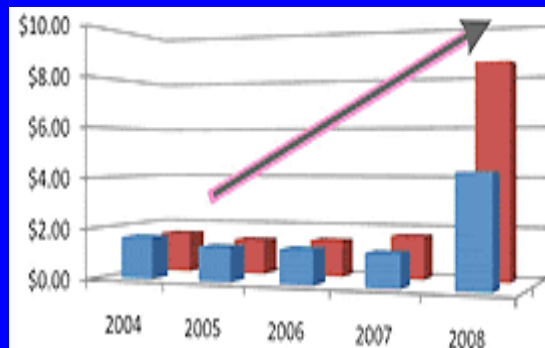
Global production of Rare Earths has historically been concentrated geographically



Source: USGS



Rare Earth Oxide Prices have risen steadily in recent years



Recent price history for selected rare earth oxides (prices in US\$/kg)

(CeO = Cerium oxide, LaO = Lanthanum oxide, DyO = Dysprosium oxide, EuO = Europium oxide, TbO = Terbium oxide, PrO = Praseodymium oxide, NdO = Neodymium oxide)

Source - Metal Pages, IMCOA



Reducing Supply-side Risk is not Rocket Science

- ❖ Incentivize environmentally sound mining, refining, and manufacturing practices
- ❖ Encourage an integrated, globally-diverse supply chain
- ❖ Enhance domestic capacity for refining and processing
- ❖ Emphasize materials minimization thru R&D
- ❖ Expand recovery and recycling opportunities



Bottom line for policymakers

- ❖ Look before you leap...
- ❖ Or close your eyes, hold your nose, and hope for the best...

