Congress whiffed in defeat of rare-earth legislation

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It took Earth millions of years to deposit "rare earths" into isolated batches, and it took a century after their discovery for scientists to figure out what to do with them besides make lantern wicks burn brighter. They became the building blocks of this age of technology - integral to every smartphone, automobile and computer, and they're behind staggering advances in medicine, energy production and weaponry. It took China a decade to corner the world market in these 17 peculiar metals, and years for the U.S. to realize it needed a coherent strategy to gain independence from China's whims. Yet it took only hours for two right-wing political groups to scuttle Congress' bipartisan plan.

After a year of negotiation, HR1022 was fast-tracked, requiring two-thirds approval. Rep. Eric Swalwell, D-Dublin, the bill's sponsor, had the backing he needed. The morning of the vote, however, Heritage Action and Club for Growth pulled off a deal-killing scheme that placed the vote on their "scorecard." Fearing the loss of their seats to ultraconservatives in primary races, some Republicans backed down. The bill gasped and died, 10 votes short.

After weeding out the lies, half-truths and straw arguments in the right-wing threat, there remain two basic arguments against the bill: The groups don't want government oversight of the rare-earths industry and they hate the idea of funding that and a technology database. These elements, however, are the heart of the bill, and they are the guarantees we need for public safety.

Government oversight is necessary. Rare earths are mined, and there's no such thing as clean mining. Monitoring is needed for the public welfare. According to the EPA, there is no formal national strategy for managing the mining, refining and manufacturing of rare earth elements. Ninety-five percent of what's mined is waste, and contaminants can include radioactive dross, released acids and the problems of heavy metals, tailings and concentrates typical of any mining operation. Manufacturing these elements into super magnets and other products is also hazardous and demands supervision. No government oversight? They have to be kidding.

No database, or, as the bill says, "information hub"? This is a farsighted innovation for a unique situation. Rare earth deposits are vastly different from other ores. The complex separation of the elements from the matrix has to be tailored to the deposit, to the very atomic structure of the elements present, and there are a number of basic refinement methods. A databank for sharing information is a monumental idea.

The price tag is $25 million a year for five years to fund oversight and the databank. It's a modest investment with big dividends in public safety, jobs and innovation.

Without those two provisions, condemned by the right, China benefits. That nation, which produces 95 percent of the global REE supply, gained its position by mining, refining and manufacturing with no thought for the environment and people. China's new high taxes on rare-earth elements, announced this week, will only begin to fund the cleanup, and the costs will be passed down to us, the end users.

In just a few hours, years of work and bipartisan negotiation, Swalwell said, "was reduced to rubble." But he has options. We encourage him to go forward with his plan to reintroduce the bill, and position it for a simple-majority vote. It will require only one thing of congressional members: the realization that, just as it took millennia to deposit rare earths, it took millions of years for humankind to develop a spine. It's time for more members of Congress to show theirs.

Rare earths

What they do

There are 17 rare earth elements; they are useful both as oxides and pure metals. In trace amounts, they are additives to fiber optics and laser crystals, and produce the three basic colors in your smartphone screen. They are in the composite used to fill teeth and in the laser that hardens it. They produce the brilliance of stadium lighting for football and baseball night games. Purified and alloyed, they become the super magnets in hybrid car engines and wind turbines, and the scores of mini-motors in cars that operate such things as windows. Rare earths make refining oil into gasoline possible by smashing complex petro-molecules.

What they are

What makes them different than other metals? In all rare earths, the outer electron shell has two electrons. As they climb the periodic table, electrons are added to the inside shells; the outer remains the same. This causes them to communalize - it's why all or most of them can be found in a single deposit - and to have unusual magnetic and optical properties.

For in-depth information on rare earth science and politics, go to www.sfgate.com/rare-earth.