Colorado part of "new gold rush" for rare-earth metals

Bruce Finley, Denver Post, 1-16-11

China may rule the increasingly ravenous world market for rare metals used to make smartphones, clean-energy technology, guided missiles and bombs.

But Colorado and other Western states also contain significant caches of rare metals — the makings of a modern-day gold rush.

Mining companies, the federal government and state agencies are pushing to find out just how much potential new money lies beneath the dirt.

Colorado Geological Survey director Vince Matthews says mining for rare-earth and other exotic metals could infuse states with severance tax revenues and jobs, while lessening U.S. dependence on China.

"The money we send overseas is not doing us any good," said Matthews, who recently addressed congressional officials in Washington. "For every penny that we can keep here, every import of anything that we can keep in this country, we're going to be better off in our own wallet and better off as a nation."

The exploratory work is intensifying because, after undercutting global prices for rare earths in the 1990s, China now mines 97 percent of the world supply. And Chinese officials recently declared they will restrict exports by 35 percent — a move reverberating from Pentagon defense industry boardrooms to local clean-energy manufacturing plants — all dependent on Chinese supplies.

But possible new mining in the western United States also raises environmental concerns because extracting, refining and recycling rare metals produces radioactive slurry and toxic acids.

Past mining operations left Colorado with 7,300 abandoned projects that still leak toxic waste into soil and water. Watchdog groups contend current standards must be maintained to avoid the ruinous low-cost open-pit practices that China relied on to become the world's dominant supplier.

The latest federal data indicate significant deposits of rare metals across Colorado, with identified resources topping 3 million tons at two sites in the Wet Mountains and San Juan Mountains.

Rare metals occurring across the state include tellurium, indium, neodymium, germanium, titanium and others for which prices over the past decade have skyrocketed.

"We really believe there's major potential in Colorado," said Ed Cowle, chief executive of Salt Lake City-based U.S. Rare Earths Inc., which plans to form a company called Colorado Rare Earths to explore several staked claims. "We're going to raise the money and try to develop it."

Wyoming, Idaho and Alaska are the leading targets for current exploration.

Alaska's Bokan Mountain site, against a deepwater bay at the southern tip of Prince of Wales Island, likely contains some of the hardest-to-get rare earths such as dysprosium. The question that minerals analysts are asking is whether concentrations in Western host rocks are high enough to make mining profitable.

"Everybody's out looking. It's the new gold rush," said Brad Van Gosen, a Denver-based geologist for the U.S. Geological Survey, who noted that titanium deposits in Colorado rank among the nation's largest and also contain rare-earth elements.

"The next step is to do extensive drilling and sampling," Van Gosen said.

Big possibilities for Denver

Beyond actual mining, Denver also is positioned to capitalize as a center for know-how and a hub for mining companies, said professor Rod Eggert, economics and business division director at the Colorado School of Mines, which is establishing a center for strategic materials research.

Denver-based Molycorp recently secured final permits and is poised to break ground on a $531 million ramp-up of production at a rare-earth mine south of Las Vegas in the California desert. Molycorp also is funding new rare-metals research into methods for separating metals from ore — and hiring graduates — at the Colorado School of Mines.

The Canadian company Rare Elements Resources likely will establish a headquarters in Denver after drilling 100 exploratory holes last year in northeastern Wyoming, chief executive Donald Ranta said. Rare Elements plans to mine 17.5 million tons there in a $65 million project, Ranta said.

"There's certainly a frenzy of activity so that the United States and other countries can be insulated from China," he said.

Beyond the 17 rare-earth elements that China controls, growing demand in China, India, Brazil and elsewhere for many other exotic metals presents huge opportunities, Colorado School of Mines extractive metallurgy professor Pat Taylor said.

"How do you meet this ever-increasing demand for these things unless you increase Western mining?" he said.

Water-quality concerns

Yet, mining in Colorado and other Western states requires adherence to laws requiring restoration of mined lands and protection of water resources. Mining industry lobbyists contend this is what forced companies to shift production to China and other countries over the past 30 years. Some say state regulators now must relax their approach — or at least speed up issuance of permits.

Environmental advocates dispute this.

"Long-term protection of water quality is not negotiable," Western Mining Action Project lawyer Jeff Parsons said. "We shouldn't be in a situation where it is a race to the bottom on environmental protection. When the United States takes a stand to protect its land from pollution, other countries will follow."

However, even pro-mining geologists envision heavy trade-offs.

"There's no such thing as no-impact mining. You can't promise that," said Jim Burnell, senior geologist in Colorado's Department of Natural Resources.

Colorado and other Western states "should go into this cautiously but not rule out mining," said Lauren Pagel, policy director for Earthworks, a Washington D.C.-based conservation group.

Chinese authorities last week defended their move to cut exports of rare metals, saying it was necessary for environmental reasons and their own long-term needs — ahead of President Hu Jintao's trip to Washington, D.C., which begins Tuesday.

U.S. federal agencies, meanwhile, are mobilizing to boost domestic production. A Defense Department overhaul of the military's strategic stockpiling program has begun. Recent congressional and Energy Department strategy reports have declared developing new sources a national priority. Some rare earths mined only in China are crucial for the U.S. military and clean-energy technology.

U.S. Rep. Mike Coffman, R-Colo., said he's crafting legislation aimed at encouraging U.S. efforts. And Colorado geologists have purchased a $30,000 X-ray instrument that can test composition of rocks. They plan to recruit college students to help in developing a strategic assessment of rare metals here.

"Pressure to develop"

Because 44 percent of Colorado land is publicly owned, with potential access to mining, Colorado Geological Survey director Matthews said the state could be overwhelmed if it is not prepared for companies rushing to stake claims.

"When the pain gets bad back in the East, the pressure to develop the West is intense," Matthews said, recalling President Jimmy Carter's push amid oil woes of the 1970s to make Western states a sacrifice zone for energy development.

"China is tying these things up. The pressure to develop resources out West can become immense. The votes are in Washington. We didn't take a vote here in Colorado on whether we were going to start developing oil shale this time around. All those decisions are made back in Washington. That kind of worries me," he said. "We need to be thinking ahead — What does happen if this happens? How might we respond? — instead of having it happen to us. Then it's too late to respond."