

Frontier Rare Earths positioned to be the next major REE producer outside of China?

✘ Frontier Rare Earths Ltd. (TSX: FRO | OTCQX: FREFF), announced news May 12th that could lead to their being the major producer of rare earths outside of China. They released a Pre-Feasibility Study (PFS), of their Zandkopsdrift deposit in South Africa. The deposit contains the highly desired critical rare earths (CRE's), and magnetic rare earths. The major news is not just the quality of the deposit, but that Frontier will do the processing themselves.

The main points were:

- The CREs present are neodymium, europium, dysprosium, terbium and yttrium
- Magnet REEs are neodymium, praseodymium, dysprosium and terbium
- Net Present Value (NPV) of \$2.98b, after taxes and royalties, at an 8% discount rate
- NPV of \$2.2 billion, after tax and royalties, at a 10% discount rate
- NPV of \$1.58 billion, after taxes and royalties at a 12% discount rate
- Annual revenues of approx. \$440m at Phase 1 capacity and approx. \$880m at Phase 2 capacity
- Approximately 76% of Project revenues are derived from critical rare earth oxides and 75% from magnet related REOs

The NI 43-101 compliant report is perhaps the most detailed study of a deposit outside China. The economic evaluation of

the project lists an internal rate of return of 30%, after tax and royalties. The PFS details 14 rare earth products that Frontier will be processing nearby. As well, power, water desalination, and by-product processing will also be part of the operation. One of the by-products, manganese, was formerly thought of as a waste product, but Frontier plans to process the element into high quality fertilizer and other agricultural products to add to profits.

The separation facility and the desalination plant will be located in the Industrial Development Zone at the deep water port of Saldanha Bay, approximately 300 km south of Zandkopsdrift. The desalination plant will be run by Sedex Desalination (Pty) Ltd. a subsidiary of Frontier Rare Earth Pty Ltd. This plant is necessary due to the high demands on water by mines, and mining camps, and the arid climate of South Africa.

The processing will involve an innovative process for which Frontier has applied for a patent, according to CEO James Kenny. They will be replacing kiln's with fluidized bed reactors, using sulphuric acid cracking. Their process will be the first time their method has been used for rare earth processing. The process will be done in connection with Outotec as consultants. Outotec is the world leader in sulphuric acid plant designing. This new process could make Frontier the most efficient, and the most environmentally friendly processor not just outside of China, but anywhere.

The production capacity is estimated a 8,000 tonnes per annum (tpa), of high purity, separated total rare earth oxides (TREO) for the first four years of operation (Phase 1). Then doubling to 16,000 tpa TREO from year five onwards (Phase 2). According to the report the proven and probable reserves of 788,700t of TREO is sufficient for a 45 year life of mine.

The supply from the Chinese is covering current demand. But with the end of quotas and the increased environmental

regulations, and the forced restructuring that will cause for many Chinese producers, demand may begin to outstrip supply within the next few years. It's more when, than if the Chinese will no longer be able to meet demand, and Frontier could become one of only 3 or 4 companies that will be able to supply the world with critical Technology Metals.

The detailed report released May 12th confirms the quality of Frontier's Zandkopsdrift deposit. The amount of CRE products that they will process themselves puts them in a unique position. They have potentially the highest quality and quantity deposit outside of China. And unlike other producers, they will be processing their own product nearby. This is good news not just Frontier but the availability of Technology Metals for years to come. The unique processing method could also make them world leaders in separation technology. We will see how long it takes Frontier to bring these remarkable advantages to market.