

# RareTerra

## Technology Summary

- Linked REE bioleaching and bioaccumulation from permanent magnet waste using REE-metabolizing bacteria
- Solid-state extraction at pH 7 through augmented microbial production of novel REE-binding molecules
- Enhanced intracellular REE accumulation and mineralization as REE granules

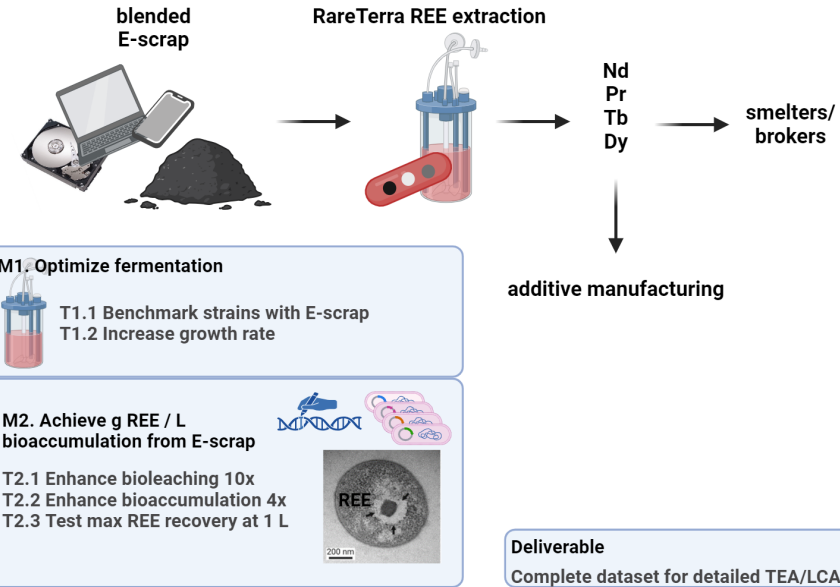
## Technology Impact

- Eliminates requirement of harsh acids or high temperatures for REE leaching
- Achieves REE separation without organic solvents through selective bioaccumulation and biomineralization
- Implements use of methanol as a renewable C source

## Technology Performance

Metric	Definition	Current
Mass Yield	Ratio of recycled material recovered to input material	Up to 75%
Reduction in Process Cost	Reduction in cost of production of rare earth oxide (compared to virgin REO)	Up to 54%
Net Greenhouse Gas Emissions	Greenhouse gas emissions of process minus greenhouse gas credit of recycled material	As little as 10%
Material Quality	Percent purity	Up to 93-99%

# Phase 1



## Community Benefits Plan

<b>S</b>	Increase good clean energy jobs and job training for individuals from DACs	
<b>M</b>	Hire at least one intern/employee from a DAC or minority-serving institution	
<b>A</b>	Interview candidates from UC-Berkeley and neighboring institutions	
<b>R</b>	UC-Berkeley and neighboring institutions are MSIs and many trainees are from DACs	
<b>T</b>	Q1	Q2