The major goals of this project were varied in nature, while focused on the importance of rare earth elements (REEs) and critical minerals (CMs) in the United States. These goals were (1) to identify the demand of REEs and CMs in the United States, (2) establish the reliance on foreign supply and product within the scope of REEs and CMs, (3) identify potential domestic solutions in the form of REE and CM supply and deposits, and (4) explore the economic factors associated with supply chains of REEs and CMs in both foreign and domestic connotations.

The primary efforts of this study were focused as a comprehensive literature review, in which the study compiled a collection of scholarly journals, industry reports, industry reviews, and government data to build the framework for the research. To identify the sources used in each of the taskings, initial searches of scholarly library databases were conducted. Ultimately, the researchers set out to answer what the present and future industry and market opportunities are? A knowledge-base was needed that (1) delineates the requirements and infrastructure needed to support domestic U.S. REE industries, and (2) summarizes the domestic and international production of CMs, markets, end use categories, and potential future domestic infrastructure requirements for on-shore CM and CM-containing product production.

Rare Earth Elements (REEs) from the greatest sources between 2015 and 2019 by volume, in metric tons.
Accomplishments:
Utilizing literature and analysis, traditional and unconventional sources of REEs and CMs were explored, as well as the overall supply chain for these minerals in the domestic market. There are many complexities related to the global REE and CM market that contribute to the convolution discovered through this report. This report found that despite current domestic demand for raw minerals, ore, processing, and manufactured goods containing these minerals being largely met from abroad, the opportunity exists to reestablish the United States as an industrial leader in these sectors.

NETL Collaboration:
Once underway, progress presentations on REE and CM market and utilization areas were given to the NETL team.

Relevant Publication:

Visual representation of all domestic imports for the United States, shown by Harmonized Tariff System (HTS) code breakdowns. The total value of the domestic imports for the year 2020, depicted above, was 2.24 trillion USD. https://oec.world/en/profile/country/usa?yearlyTradeFlowSelector=flow1