

NETL Science – Unconventional Domestic Mineral Wealth

NETL is developing scientific strategies to establish technical recoverability from unconventional mineral deposits. These abundant but low-grade resources will enable domestic supplies of minerals critical for clean energy and national defense.



Researcher Obarr examines rock core with a handheld X-ray fluorescent spectrometer.

The Critical Minerals Characterization Program has identified multiple promising pathways to utilize legacy fossil waste streams and unconventional resources to (1) recover significant quantities of a variety of critical minerals and materials (CMM) and (2) produce novel CMM for new energy applications.

- Work portfolio includes multiple patents and spans from proof-of-concept to cooperative research and development agreements for developing and testing promising technologies.
- Multiple ongoing case studies that include developing carbon-based materials from coal and rare earth element recovery from acid mine drainage.
- These efforts rely on advanced analytical methods to characterize the nature of CMM in unconventional resources, including methods developed at NETL and user facilities throughout the national lab complex.
- NETL researchers are helping to unlock the collective strength of the DOE national lab complex through the newly launched METALLIC effort.
- Enhanced recovery and production will also support new domestic jobs in mining, manufacturing and environmental stewardship.

DOE PROGRAM

Minerals Sustainability

NETL PARTNERS

