

**U.S. Department of Energy
Office of Fossil Energy and Carbon Management
National Energy Technology Laboratory**

**Request for Information (RFI)
DE-FOA-0003075**

Title: Facilitating a Domestic Critical Minerals Future: Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) Initiative

Issue Date: May 17, 2023

Due Date: July 17, 2023

Program Area: Office of Fossil Energy and Carbon Management (FECM)/National Energy Technology Laboratory (NETL); U.S. Department of Energy (DOE)

Purpose:

In 2020, NETL issued the Funding Opportunity Announcement (FOA) DE-FOA-0002364 for the Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) Initiative for United States (U.S.) Basins to advance the use of unconventional and secondary feedstocks to produce rare earth elements (REEs), critical minerals (CMs) and novel high-value, nonfuel, carbon-based products (CBPs), as part of our next generation of domestic U.S. materials. Realizing the CM potential in these feedstocks would enable the U.S. to reduce its dependence on REE and CM imports and establish and advance a domestic critical minerals and materials (CMM) supply chain. The purpose of this Request for Information (RFI) is to seek information from industry, investors, developers, academia, research laboratories, government agencies, tribal governments, potentially impacted communities, and other stakeholders on various questions regarding the regional assessment and development of critical mineral supply chains from unconventional and secondary feedstocks. Such effort would consider environmental justice, the ongoing energy transition, and impacts on tribal lands and other communities. Information on concepts, processes, configurations, and systems related to the following comments and questions are requested. While FECM/NETL's preference is that respondents address all numbered items below, responses that address only a subset of the questions would still be helpful and are welcomed. For the purposes of this RFI, "critical minerals" is defined by Executive Order 13817¹ dated December 20, 2017.

This is solely a request for information, for planning purposes, only; this RFI is not (FOA). DOE is not accepting applications to this RFI, nor will DOE reimburse any of respondents' costs in preparing a response.

FECM/NETL recognizes that under the CORE-CM Initiative as outlined in DE-FOA-0002364, additional phases were planned, which is dependent on available federal funding. DE-FOA-0002364 indicated there would be a competitive down selection process to select subsequent awardees. While no guarantee of occurrence, if DOE were to conduct a Phase 2 of the CORE-CM Initiative, it would be conducted under a new, competitive FOA solicitation. For ease of

¹ A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals
<https://www.federalregister.gov/documents/2017/12/26/2017-27899/a-federal-strategy-to-ensure-secure-and-reliable-supplies-of-critical-minerals>

communication, within this document, we will be referring to the future CORE-CM Initiative planned as outlined in DE-FOA-0002364 as “Phase 2” and “Phase 3” with no guarantee that funding will be made available or that subsequent FOA(s) will be issued.

Information Request: The information being sought is intended to assist DOE in the development of priorities and initiatives, as well as the methodologies and technologies required to assess the critical mineral potential of unconventional and secondary feedstocks across the United States and technology and development required to further grow the domestic CM supply chain.

The information collected may be used for internal DOE planning and decision making purposes across its Research, Design, Development and Deployment (RDD&D) portfolio, including, but not limited to: determining potential new areas of focus and innovation, identifying challenges and knowledge gaps, identifying funding opportunities, identifying regional issues for consideration, and determining the potential for clean energy careers, all while considering the potential impacts to local communities (including impacts related to environmental justice² and the energy transition).

Organizations that respond to the RFI can respond *to all or only a portion* of the RFI. **A response template is being offered for your use as you develop your response. Use of the template is not required.**

Please reference the definitions below³.

Definition 1.1: Unconventional Feedstocks: Unconventional rock and sediment sources include underclays, coal, shale, garnet sands, sulfide mineral by-products, and oil and gas produced waters and brines extracted as part of carbon storage activities. Mineral processing, extractive metallurgy, and manufacturing sources include mineral processing tailings, slag and furnace residue, and hydrometallurgical leachates.

Definition 1.2: Secondary Feedstocks: Secondary rock and sediment sources include overburden, coal tailings/refuse, acid mine drainage and sludge. Mineral processing, extractive metallurgy, and manufacturing sources include coal fly ash, flume dust, slurry, wastewaters and acid solutions, and alloy residues.

Background: In 2021, NETL awarded 13 projects under Phase 1 of the Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) Initiative through DE-FOA-0002364⁴. The vision of the CORE-CM Initiative for U.S. Basins is to catalyze regional economic growth and job creation by realizing the full potential value of natural resources, such as coal, coal ash, acid mine drainage, as well as other unconventional and secondary CM sources, across basins throughout the U.S. Projects were meant to form coalition teams that consisted of private industry, university, state, local and federal government personnel, tribal governments, and others to address the upstream and midstream critical minerals supply chain and downstream manufacturing of high-value, nonfuel, carbon-based products to

² Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation and enforcement of environmental laws, regulations and policies. [Environmental Justice | US EPA](#)

³ FECM Minerals Sustainability Division Multi-Year Program Plan for division of Minerals Sustainability https://www.energy.gov/sites/default/files/2021-10/MSD%20Multi-Year%20Program%20Plan%202021_0.pdf

⁴ Opportunity: Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) Initiative for United States (U.S.) Basins <https://www.fedconnect.net/FedConnect/default.aspx?doc=DE-FOA-0002364&agency=DOE>

accelerate the development of critical mineral supply chains within the U.S basins. U.S. coals, associated by-products, and coal-based and non-coal-based waste streams can be used as feedstocks for domestic production of REE and CM to enhance our national and economic security and for the production of high-value, nonfuel CBP⁵. It was envisioned as a multi-year, 3- (three-) phased effort to accomplish six objectives:

- 1. Basinal Assessment of CORE-CM Resources**
- 2. Basinal Strategies for Reuse of Waste Streams**
- 3. Basinal Strategies for Infrastructure, Industries and Businesses**
- 4. Technology Assessment, Development, and Field Testing**
- 5. Technology Innovation Centers**
- 6. Stakeholder Outreach and Education**

CORE-CM projects are currently gathering existing data or acquiring new data, completing initial assessments, and drafting initial plans to form a foundation for subsequent formulation and implementation of strategies for producing REEs, CMs, or CBPs. Initially these interests were focused on traditional coal-producing basins with emphasis on coal and coal by-product feedstocks. Phase 1 has grown to include all other unconventional and secondary sources, including oil and gas produced brines and drill cuttings, mineral mine tailings, and other energy waste sources.

The initial focus in the CORE-CM Initiative was on coal and coal by-products as feedstocks, and therefore the areas of interest were on traditionally coal producing basins (*Figure 1*). FECM/NETL has expanded their interests in obtaining CMs from more than just coal and coal by-products and has begun to explore the CM potential contained in other secondary and unconventional feedstocks to include along with coal and coal by-products (such as coal fly ash, coal mine refuse, acid mine drainage/sludge) the following potential CM resources (not an exhaustive list):

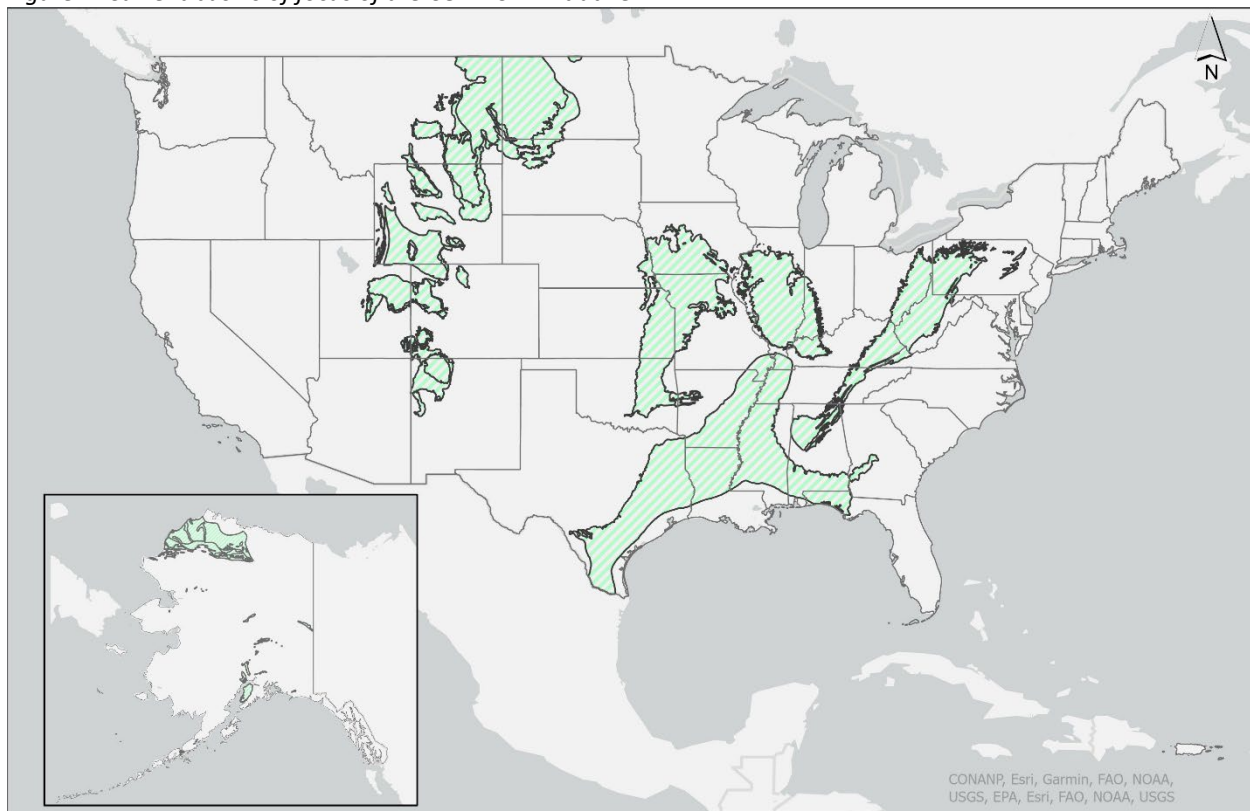
- Oil and gas produced waters and drill cuttings
- Brines extracted as part of carbon sequestration activities
- Mineral mine tailings
- Bauxite residue
- Phosphate (Phosphogypsum) wastes
- Sedimentary deposits (such as metalliferous shale and underclays)
- Enhanced geothermal brines

FECM/NETL is not interested in electronic waste or recycled materials as those feedstocks are being examined in other parts of DOE.

With the expansion of interest to include the range of these resources, FECM/NETL is seeking input whether the Phase 1 basin model approach for CORE-CM makes the most sense to understand the full potential for all unconventional and secondary feedstocks.

⁵ [Carbon Ore Processing | netl.doe.gov](https://carbonprocessing.netl.doe.gov)

Figure 1: Current basins of focus of the CORE-CM Initiative

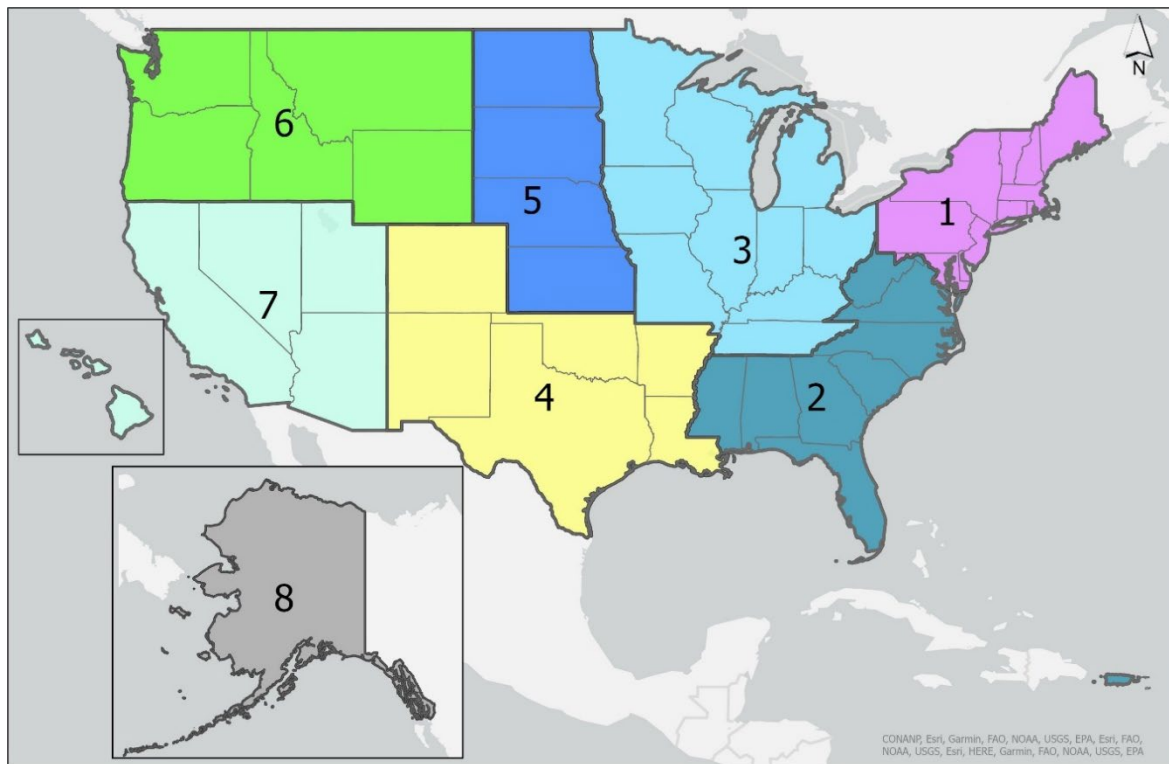
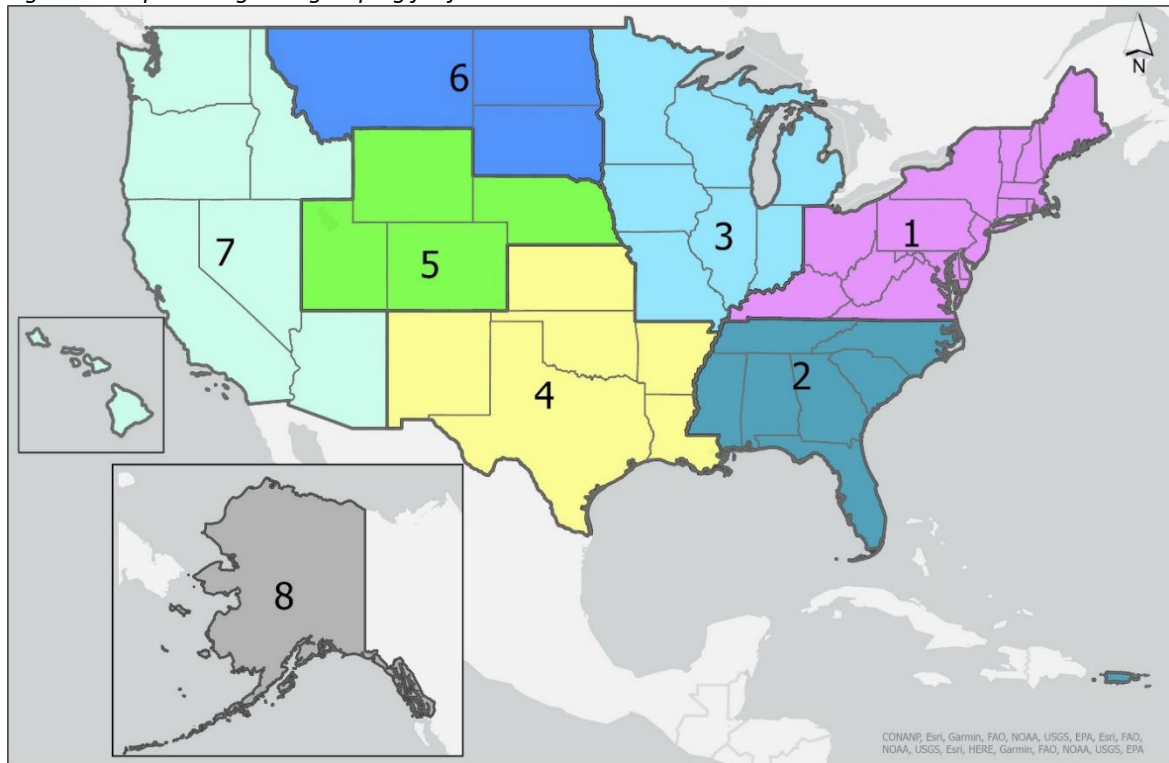


Question 1: Does continuing with the basin model approach for CORE-CM make the most sense for understanding CM potential for all unconventional and secondary feedstocks or does it make more sense to switch to a regional approach and why?

Consider the goal of CORE-CM is to understand the full CM potential from unconventional and secondary sources and to help rebuild a domestic CM supply chain, and projects are to consider infrastructure, industries, and businesses to formulate strategies to integrate and leverage regional attributes to spur economic growth.

For reference consider the following maps (*Figure 2*) of a suggested regional as opposed to basinal approach. **These are only suggestions of regional/state breakdown to provide as an example to help facilitate discussion and include the contiguous United States, Hawaii, Puerto Rico, and Alaska in your discussion.** We are providing a blank map below to help facilitate this discussion (*Figure 3*).

Figure 2: Proposed regional grouping for further CORE-CM Initiative Research



Please feel free to provide feedback directly on the map regarding the basinal vs regional approach discussed above or offer an alternative. If you prefer to provide a written answer, use of the map is not necessary. Please describe in your answer your proposed state/regional clustering.

Figure 3: Blank Map of the United States, including Hawaii and Puerto Rico



DE-FOA-0002364 awardees are required to submit all non-proprietary characterization analytical data generated as a result of research completed within the CORE-CM Initiative Phase 1 projects for public release. For awareness, NETL currently makes publicly available field sampling and chemical characterization CM data from over 4,200 coal, coal by-products, and coal associated strata samples on the Energy Data eXchange (EDX)⁶ website. Additionally, NETL has recently released the prototype National Critical Minerals Data Dashboard⁷ that provides data-driven insights to help unlock the potential of unconventional CM resources in the U.S., with a focus on 12 priority CMs. For consistency, awardees have been provided a template for data collection.

Note Regarding Standardization of Data: Under the 2020 Action Plan (Action 20), the General Services Administration (GSA) has been collaborating with the Office of Management and Budget (OMB), in consultation with the National Institute of Standards and Technology (NIST), to create a data standards repository to accelerate the creation and adoption of data standards across government agencies. This repository will include information about the different types of existing standards of all types (e.g., metadata, content, classification), including policies related to using voluntary consensus standards, information about standards-developing organizations and communities of practices inside and outside of government, and a catalog of data standards already in use by the Federal Government⁸

Consider the data produced by participants of the CORE-CM Initiative are intended to promote domestic development and production of CMs. DOE is interested in understanding the cradle-to-grave journey of critical minerals and materials. DOE is seeking feedback regarding these requirements to release non-proprietary characterization data to the public.

Question 2:

- a. Do you see public access to data that is non-proprietary and was produced using federal support/funding as a security issue and why?
- b. Would restriction of access to such data inhibit research and innovation of the scientific community and why?
- c. What is an appropriate period of time between collection of data and making it publicly accessible and why?
- d. Would access to such data be necessary for critical mineral cradle-to-grave traceability, and how would it help (e.g., more easily tracing the origin of CM material from feedstock through end-product and recycling/reuse)?
- e. What benefit is there to having standards that can be referenced not only CORE-CM awardees and other government agencies, but the wider CM community for the collection of critical mineral data (e.g., work being done under the 2020 Action Plan, or standards developed within the International Organization for Standardization (ISO))?

Furthermore, DOE understands the assessment and potential recovery of CM from unconventional and secondary sources may require access and/or (re)development of legacy or brownfield sites.

⁶ Rare Earth Elements & Coal Open Database [Geocube \(doe.gov\)](https://geocube.doe.gov)

⁷ Rachel Yesenchak, Devin Justman, Sophia Bauer, Michael Sabbatino, C. Gabriel Creason, Andrew Gordon, Scott N. Montross, Kelly Rose, National Critical Minerals Data Dashboard, 3/21/2023, <https://edx.netl.doe.gov/dataset/national-critical-minerals-data-dashboard>, DOI: 10.18141/1962402

⁸ 2020 Action Plan [Action Plan - Federal Data Strategy](#)

These types of sites may present environmental, technical, and financial hurdles for their current owners including engineering challenges (e.g., deconstructing tailings piles).

Question 3:

- a. What has been your experience so far when engaging with waste site owners considering the possibility of redevelopment of their site?
- b. Who should take on these challenges involved with redevelopment of these sites (e.g., private industry, local, state, or federal governments)?
- c. In your experience, what kind of assistance would be needed from regulators and the government to make redevelopment feasible? Is a ‘good Samaritan’⁹ law sufficient here?
- d. Can you provide case studies from your previous experience in similar land use redevelopment?

Obtaining permits for the development of CM from unconventional and secondary sources may be required from a variety of regulators depending on where the potential site/operation may be located. DOE is trying to understand what hurdles may be encountered with respect to the permitting process and the steps that may be required to gain permits at these types of sites. In particular, DOE is seeking input on whether mines developed prior to the passage of the Surface Mining Control and Reclamation Act (SMCRA) of 1977¹⁰ provide their own unique benefits and/or challenge if they were to be redeveloped for CM extraction.

Question 4:

- a. What hurdles associated with the permitting process have you experienced, or do you foresee?
- b. Please elaborate if you foresee gaining permits for “older” (e.g., pre-Surface Mining Control and Reclamation Act (SMCRA) of 1977) sites as more challenging compared to “newer” (e.g., post-SMCRA) sites or currently active mining operations?
- c. What permitting variation do you anticipate for operations that occur on state or federal land versus private land, or for sites that are at different stages in the remediation/reclamation process?

Phase 2 was originally conceived to allow for the completion of the basinal foundational work of Phase 1 and to begin the initial implementation of strategic plans that were also developed in Phase 1. DE-FOA-0002364 originally planned for projects selected for Phase 2 to formulate strategies and begin to catalyze regional economic growth and job creation by realizing the full potential value of CORE-CM resources, as well as other minerals and waste streams. The Phase 2 effort plan included:

- Implementation of R&D plans prepared in Phase 1 to fill information gaps in the initial assessments of CORE-CM resources and regional waste streams.
- Based on the results of the Phase 1 Basinal Strategies for Infrastructure, Industries, and Business Assessment, the formulation of strategies to integrate and leverage regional infrastructure, industries, and businesses to spur economic growth by utilizing the basin’s

⁹ S.3571 - Good Samaritan Remediation of Abandoned Hardrock Mines Act of 2022 [S.3571 - 117th Congress \(2021-2022\): Good Samaritan Remediation of Abandoned Hardrock Mines Act of 2022 | Congress.gov | Library of Congress](#)

¹⁰ Surface Mining and Control and Reclamation Act of 1977 [COMPS-1574.pdf \(govinfo.gov\)](#)

CORE-CM resources as well as other minerals and waste streams. Strategies should address the regional infrastructure needs, economic challenges and supply chain gaps identified in Phase 1. Phase 2 may also include implementation of the first stages of those strategies.

- Formulation of research strategies to develop and field test CORE-CM technologies to fill the technology gaps identified in Phase 1. Phase 2 may also include implementation of the first stages of those strategies.
- Updating Phase 1 plans for technology innovation centers that will be developed and operated by basin-specific public-private partnerships to provide a centralized and consistent platform to develop and validate CORE-CM technologies. Phase 2 may also include implementation of the first stages of those plans.
- Updating Phase 1 plans for stakeholder outreach and education that are necessary to support CORE-CM economic development activities. Phase 2 may also include implementation of the first stages of those plans.
- Preparation of a Workforce Development Plan for the training of the next generation of technicians, skilled workers, and STEM professionals, including scientists and engineers, for securing domestic materials and component production. This will include integration of accredited mining schools and other academic institutions, training and workforce development organizations, and National Laboratories within the basin being proposed. The plan will address the training needs and plan to develop and implement training for (1) technicians, (2) skilled workers, and (3) STEM professionals (including scientist and engineers)

Building on the work completed in Phases 1 and 2, the plan for projects selected for Phase 3 was to further implement the strategies and plans created in Phase 2. The Phase 3 effort will include, but may not be limited to:

- Continued implementation of research strategies to develop and field test CORE-CM technologies.
- Continued implementation of plans to develop and operate technology innovation centers.
- Continued implementation of plans for stakeholder outreach and education that are necessary to support CORE-CM economic development activities.

As shown in DE-FOA-0002364, the Period of Performance for projects under each Phase was anticipated to be:

Phase	Period of Performance
Phase 1	2 years
Phase 2	3.5 years
Phase 3	4.5 years
Total	10 years

Considering the above information for Phase 2 and Phase 3 of the CORE-CM Initiative, and the timing of the period of performances, DOE is seeking feedback on the approach as outlined in DE-FOA-0002364.

Question 5:

- a. Does this phased approach make the most sense for approaching redevelopment of a CM supply chain in the United States? What do you like or not like about it?
- b. Is there any area that needs more focus and/or additional research?
- c. Are there any components missing from this approach?
- d. Do certain areas need to be fully completed prior to moving on to future phases?

Additionally, CORE-CM projects are working on assessing regional infrastructure, industries and businesses to formulate strategies to integrate and leverage regional attributes to spur economic growth by utilizing the basin's CORE-CM resources as well as other minerals and waste streams. Projects will also identify regional infrastructure needs, economic challenges and supply chain gaps that must be addressed to successfully use those CORE-CM strategies to promote economic growth and create jobs. This could include looking at "moth-balled" facilities and well as accessing brownfield sites.

Question 6:

- a. If you were to lay out a "roadmap/storyboard" on the necessary steps (permitting, availability of financing, characterization required, etc.) for the development of a CM supply chain, what are the steps you would take?
- b. What other additional criteria are required as part of this roadmap (e.g., workplan, market transformation plan, team and resources, financial, regional economic benefits, quality jobs, environmental justice, diversity, equity, inclusion) and do you foresee certain obstacles?

The DOE realizes the success of the CORE-CM Initiative relies on the formation of partnerships with awardees and commercial industries. Considering both the success of the CORE-CM Initiative and then general need to expedite the re-establishment of domestic supply chains, DOE is contemplating a critical minerals and materials "matchmaker system" that would help connect the appropriate commercial industries with viable economic resources. Such a system may include a "marketplace" where U.S. companies (or allied partners) describe their resource needs, and local or regional groups describe their material and infrastructure resources.

Question 7:

- a. Do you support or see value in the development of a critical minerals and materials "matchmaker"?
- b. Do you know of such systems already in place?
- c. Do you have suggestions on how to design such a system?

The CORE-CM Initiative also requires stakeholder outreach and education planning. One aspect of this is engagement and the formation of consortium teams that include Tribal, Federal, state, local governments, communities, and non-profit/non-governmental groups to provide information on technology development, environmentally sustainable pathways, and economic potential for the production of REE, CM and high-value, nonfuel, carbon products.

Principles of equity and justice will be considered as part of Phase 2 of the CORE-CM Initiative, if a FOIA is released, consistent with the Biden Administration's commitments to ensure that overburdened, underserved, and underrepresented individuals and communities have access to federal resources pursuant to EO 13985, *Advancing Racial Equity and Support for Underserved Communities*; EO 14020, *Establishment of the White House Gender Policy Council*; and EO 14008, *Tackling the Climate Crisis at Home and Abroad*. Implementation efforts shall ensure that 40% of the overall benefits of certain Federal investments flow to disadvantaged communities (DACs),¹¹ and not exacerbate existing inequalities, including disproportionate exposure to environmental hazards and harms (the Justice40 Initiative, or Justice40). Additionally, potential projects should advance equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

Strengthening prosperity – by expanding good, safe union jobs and supporting job growth through investments in domestic manufacturing – is a key goal set by President Biden and is discussed in depth in his Executive Orders on Ensuring the Future Is Made in All of America by All of America's Workers (EO 14005), Tackling the Climate Crisis at Home and Abroad (EO 14008), Worker Organizing and Empowerment (E.O. 14025), and Promoting Competition in the American Economy (EO 14036). As such, a potential Phase 2 of the CORE-CM Initiative will support the creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship, and quality pre-apprenticeship.^{12,13}

¹¹ The Justice40 initiative, established by E.O. 14008, states that 40% of the overall benefits of certain federal investments should flow to disadvantaged communities (DACs). [DOE's definition of DACs, which should be used to determine benefits calculations, is available https://www.energy.gov/diversity/office-economic-impact-and-diversity.](https://www.energy.gov/diversity/office-economic-impact-and-diversity)

¹² Registered Apprenticeship Program (RAPs) are a proven model of job preparation, registered by DOL or a DOL-recognized State Apprenticeship Agency (SAA), which employ workers and combine paid On-the-Job Learning (OJL) (also referred to as On-the-Job Training (OJT)) with Related Instruction (RI) to progressively increase workers' skill levels and wages. RAPs are also a business-driven model that provide an effective way for employers to recruit, train, and retain highly skilled workers. RAPs allow workforce partners, educators, and employers to develop and apply industry standards to training programs, thereby increasing the quality of the workforce and workforce productivity. RAPs offer job seekers immediate employment opportunities that pay sustainable wages and offer advancement along a career path as they complete their training. Registered Apprentice completers receive industry-recognized certificates of completion leading to long-term career opportunities. For more information on RAPs, please visit www.apprenticeship.gov.

¹³ The US Department of Labor has developed a framework for Quality Pre-Apprenticeship Programs:

- Training and curriculum based on industry standards, approved by the Registered Apprenticeship sponsor with whom the pre-apprenticeship program is partnering. Strategies that increase Registered Apprenticeship opportunities for disadvantaged and under-represented individuals that will allow the participant to meet the entry requirements for a Registered Apprenticeship program upon completion. These involve:
 - » Strong recruitment efforts for populations under-represented in Registered Apprenticeship programs

Therefore, as part of the potential CORE-CM Phase 2 FOA, if released, projects may be required to submit as part of their applications a “Community Benefits Plan” to demonstrate meaningful engagement with and tangible benefits to communities in which these projects will be located. These plans would provide details on their commitments to community and labor engagement, quality job creation, diversity, equity, inclusion and accessibility, and benefits to disadvantaged communities as part of the Justice40 Initiative. The selected projects may be required to develop and implement strategies to ensure strong community and worker benefits, and report on such activities and outcomes.

Question 8: What regional factors should be included as part of the broader implementation of the CORE-CM Initiative?

This could include: economic considerations, policy considerations, labor-management partnerships, environmental and energy justice considerations, geology, workforce availability and skills, current industrial and other relevant infrastructure and storage available/repurposed/reused, industry partners, minority-owned businesses, regional specific resources, security of supply, climate risk, etc.

» Educational and pre-vocational services that prepare participants to meet the minimum qualifications for entry into a Registered Apprenticeship program

» Activities introducing participants to Registered Apprenticeship programs and assistance in applying for those programs

- Access to support services that help participants remain in the program (such as childcare, transportation, counseling and ongoing career services).
- Collaboration with Registered Apprenticeship sponsors to promote apprenticeship to other employers as a quality approach to attain and retain a skilled workforce.
- Hands-on experience that simulates the work performed in the Registered Apprenticeship, while observing proper supervision and safety protocols.
- Formal agreements, wherever possible, with Registered Apprenticeship sponsors for entry into Registered Apprenticeship programs upon successful completion of the pre-apprenticeship program.

For additional information on pre-apprenticeship, please review [USDOL’s Training and Employment Notice 13-12](#).

SECTION SPECIFIC TO THE COMMUNITY

According to the International Energy Agency (IEA), meeting the goals of decarbonizing the economy by 2050 requires at least a quadrupling in mineral demand¹⁴. However, America's import dependency for many of the minerals and metals needed for the clean energy transition has continued to increase over the past 30 years¹⁵, with much of the production of CM production concentration in the Democratic Republic of the Congo (DRC) and People's Republic of China (China), with a strong concentration of mineral processing occurring in China. This high level of supply chain concentration focused within a few countries along with the general complexity of CM supply chains increases the risks associated with CM supply chain disruptions¹⁶. As such supply chain security has become a strategic issue to America's economic and national security¹⁷.

Coal refuse, coal by-products, and other energy waste streams have been shown to have usable concentrations of critical materials. Using these sources as feedstocks for CM will diversify domestic supply and has the potential to accelerate the production of CM while addressing environmental waste and degradation issues, revitalize domestic manufacturing and refining capabilities, and create new jobs in the critical mineral, metallurgical and environmental sectors, particularly in those regions heavily impacted by the energy transition.

Question 9: For the following question consider that the resources of interest (as defined in the list on page 3) may occur on or in proximity to Tribal land and sacred sites, or in proximity to coal mining communities:

- a. Is there interest in repurposing these resources for both economic and environmental benefit? If not, why?
- b. If so, what level of communication and cooperation is expected from groups involved with the study of these resources?
- c. What types of outreach and engagement strategies are needed to make sure these stakeholders are involved during each phase, and are there best practices for equitably and meaningfully engaging stakeholders?
- d. What issues or challenges do you predict may arise when attempting to study these resources and ultimately develop them?
- e. Are there any current problems your community is facing with regards to legacy waste materials?

In keeping with the Administration's goals, and as an agency whose mission is to help strengthen our country's energy prosperity, DOE strongly supports investments that expand union jobs, improve job quality through the adoption of strong labor standards, increase job access, strengthen local economies, and develop a diverse workforce for the work of building and maintaining the country's energy infrastructure and growing domestic manufacturing. The CORE-CM Initiative ideally would support the creation of good-paying jobs with the free and fair choice to join a union, the

¹⁴ International Energy Agency Report, The Role of Critical Minerals in Clean Energy Transition. <https://iea.blob.core.windows.net/assets/24d5dfbb-a77a-4647-abcc-667867207f74/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf>

¹⁵ U.S. Geological Survey, Minerals Commodity Summaries 2021. <https://pubs.er.usgs.gov/publication/mcs2021>.

¹⁶ IEA, [The Role of Critical Minerals in Clean Energy Transitions \(windows.net\)](https://iea.blob.core.windows.net/assets/24d5dfbb-a77a-4647-abcc-667867207f74/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf)

¹⁷ Center for Strategic and International Studies Report, The Geopolitics of Critical Minerals Supply Chains. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210311_Nakano_Critical_Minerals.pdf?DR03x5jlrwLnNjmPDD3SZjEkGEZFEcgt.

incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship and quality pre-apprenticeship.

Question 10:

- a. In what ways, if any, do you anticipate the CORE-CM Initiative could impact the workforce in your community?
- b. What activities and engagement would make the CORE-CM Initiative successful and sustainable in terms of workforce development; worker recruitment; improved diversity, equity, and inclusion across the workforce; and the creation of good union jobs?
- c. What tools should the CORE-CM Initiative utilize to meet the goals of providing opportunities for workers displaced from fossil industries and other industrial or resource-based industries in decline?
- d. What tools should be utilized to ensure good-paying and secure work opportunities for local residents in the construction and long-term operations of projects, especially in disadvantaged communities and in communities that have experienced or will experience job losses due to economic transition?

Energy, Equity, and Environmental Justice (EEEJ) principles and priorities will be central to the successful implementation of the CORE-CM Initiative. Equity requires the consideration of existing barriers underserved and underrepresented individuals and communities face when accessing Federal resources. Environmental and energy justice principles include procedural justice, distributive justice, recognition justice, and restorative justice. For the purposes of this RFI, DOE has identified the following non-exhaustive list of policy priorities as examples to guide DOE's implementation of Justice40¹⁸ in DACs: (1) decrease energy burden;^{19,20,21} (2) decrease environmental exposure and burdens;²² (3) increase access to low-cost capital; (4) increase the clean energy job pipeline and job training for individuals;²³ (5) increase clean energy enterprise creation (e.g., minority-owned or disadvantaged business enterprises); (6) increase energy democracy, including community ownership and other economic benefits associated with the energy transition; (7) increase parity in clean energy technology access and adoption; and (8) increase energy resilience.

Equity

Ensuring that traditionally underserved populations, including Black, Latino, Indigenous and Native American people, Asian Americans and Pacific Islanders and other persons of color; members of

¹⁸ The Justice40 Initiative states that 40% of the overall benefits of certain federal investments will flow to DACs, and that projects will have minimal negative impacts on communities with environmental justice concerns. The Justice40 Interim Guidance defines benefits as direct and indirect investments (and program outcomes) that positively impact disadvantaged communities and provides examples (Page 4): <https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf>

¹⁹ The Initiative for Energy Justice https://iejusa.org/glossary-and-appendix/#glossary_of_terms

²⁰ DOE's LEAD tool illustrates energy burden in U.S. <https://www.energy.gov/eere/slsc/maps/lead-tool>

²¹ Drehobl, A., Ross, L., and Ayala, R. 2020. How High are Household Energy Burdens? Washington, DC: ACEEE.

²² Tessum, C., et al., 2019. Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. Proceedings of the National Academy of Sciences.

²³ DOE's US Energy & Employment Jobs Report (USEER), <https://www.energy.gov/us-energy-employment-jobs-report-useer>; Department of Labor, Civilian Labor Force by Sex, <https://www.dol.gov/agencies/wb/data/facts-over-time/women-in-the-labor-force>

religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural or remote areas; persons otherwise adversely affected by persistent poverty or inequality; and Historically Black Colleges and Universities (HBCUs), Minority-Serving Institutions (MSIs), and Tribal Colleges and Universities (TCUs) have access to Departmental programs and opportunities.

Question 11:

- a. What information do communities, Tribal or State governments, or other stakeholders need to engage with DOE on the CORE-CM Initiative?
- b. What benefits or opportunities could encourage local, State, and Tribal governments to consider engaging with DOE on the CORE-CM Initiative?
- c. How should DOE better engage local, State, and Tribal communities to establish reasonable expectations and plans concerning the CORE-CM Initiative?

Environmental Justice and Energy Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys: (1) the same degree of protection from environmental and health hazards, and (2) equal access to the decision-making process to have a healthy environment in which to live, learn, and work. Environmental Protection Agency (www.epa.gov/environmentaljustice).

Energy justice refers to the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system. Initiative for Energy Justice (2019).

Energy justice refers to the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system.

Procedural Justice

Procedural Justice is the idea of fairness in the processes that resolve disputes and allocate resources.

Question 12:

- a. How can the CORE-CM Initiative ensure community-based stakeholders/organizations are engaged and included in the planning, decision making, and implementation process (e.g., including community-based organizations on the program/project/activity team)?
- b. What barriers exist, if any, for deeper economic and other engagement with communities impacted by CORE-CM Initiative project.

Distributive Justice

Distributive justice concerns the fair allocation of resources among diverse members of a community.

Question 13:

- a. Please give input on how the Justice40 policy priorities can be achieved through the CORE-CM Initiative to ensure that 40% of the overall benefits of projects will flow to disadvantaged communities (DACs) and maximize implementation co-benefits.
- b. With concrete example(s), how will regional economic growth and its benefit be shared with underserved populations?
- c. What equity, energy, and environmental justice concerns or priorities are most relevant for the CORE-CM Initiative and how can these concerns or priorities be addressed?
- d. How are adverse impacts currently measured or monitored, and which materials/processes/components result in the largest environmental impact and what opportunities exist to minimize impacts?
- e. Describe possible human health, environmental or ecological considerations, both positive and negative (e.g., are there any air quality impacts, sensitive ecosystems, National Environmental Policy Act (NEPA) issues, environmental justice communities, other considerations) in connection with implementation of this provision.

Question 14/Additional Comments:

Do you have additional thoughts or comments regarding the content above, the CORE-CM Initiative, or topics that may have been missed or glossed over?

DISCLAIMER AND IMPORTANT NOTES:

This RFI is not a FOA; therefore, DOE is not accepting applications at this time. DOE may or may not elect to issue a FOA in the future based on or related to the content and responses to this RFI. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if DOE chooses to issue a FOA regarding the subject matter.

Any information obtained as a result of this RFI is intended to be used by the Government on a non-attribution basis for planning and strategy development; this RFI does not constitute a formal solicitation for proposals or abstracts. Your response to this notice will be treated as information only. DOE will review and consider all responses in its formulation of program strategies for the identified materials of interest that are subject of this request. DOE will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that DOE is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. Responses to this RFI do not bind the DOE to any further action related to these topics.

FREEDOM OF INFORMATION ACT:

Responses received under this RFI are subject to public disclosure under the Freedom of Information Act. Because information received in response to this RFI may be used to structure future programs and funding opportunity announcements and/or otherwise be made available to the public, **respondents are strongly advised to NOT include information in their responses that might be considered business sensitive (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential.**

Consistent with 10 CFR 1004.11, DOE requires that any person submitting information that they believe to be confidential and exempt by law from public disclosure should submit **two well-marked copies**: one copy of the document marked “confidential” which must clearly and conspicuously identify the business sensitive, trade secrets, proprietary, or otherwise confidential information, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. **Failure to comply with these marking requirements may result in disclosure of the unmarked information under the Freedom of Information Act or otherwise.** The Government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose.

If you choose to provide business sensitive, trade secrets, proprietary, or otherwise confidential information, you must include a cover sheet marking as follows identifying the specific pages containing business sensitive, trade secrets, proprietary, or otherwise confidential information:

Notice of Restriction on Disclosure and Use of Data: Pages [List Applicable Pages] of this response may contain business sensitive, trade secrets, proprietary, or otherwise confidential information that is exempt from public disclosure. Such information shall be used or disclosed only for the purposes described in this RFI DE-FOA-0003075. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

In addition, (1) the header and footer of every page that contains business sensitive, trade secrets, proprietary, or otherwise confidential information must be marked as follows: “Contains Business

Sensitive, Trade Secrets, Proprietary, or Otherwise Confidential Information Exempt from Public Disclosure” and (2) every line and paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

EVALUATION AND ADMINISTRATION BY FEDERAL AND NON-FEDERAL PERSONNEL

Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to DOE providing their response to non-Federal parties. Non-Federal parties given access to responses must be subject to an appropriate obligation of confidentiality prior to being given the access. Submissions may be reviewed by support contractors and private consultants.

REQUEST FOR INFORMATION RESPONSE GUIDELINES

Responses to this RFI must be submitted electronically to DE-FOA-0003075RFI@NETL.DOE.GOV, with the subject line “DE-FOA-0003075-RFI” no later than 5:00 pm (ET) on **July 17, 2023**. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25 MB be compressed (e.g., zipped) to ensure message delivery. Respondents may fill out the Excel or Word template attachment for ease, although not required. If not using either of the provided response templates, responses must be provided as a Microsoft Word (*.doc), or Adobe Acrobat (*.pdf) attachment to the email. Respondents can embed the accompanying map in either Microsoft Word or Adobe Acrobat.. Alternatively, an image of the map may be submitted as a separate file, but the file needs to be labeled in a way that makes it clear which submission it is associated with.

While electronic responses are preferred, if a respondent wishes to respond by U.S mail, responses can be mailed to the following address. Responses must be postmarked by July 17, 2023.

**DE-FOA-0003075RFI
National Energy Technology Laboratory
Building 922
626 Cochran Mill Road
Pittsburgh, PA 15236**

DOE will not respond to individual submissions or publicly publish a compendium of responses. A response to this RFI will not be viewed as a binding commitment to develop or pursue the project or ideas discussed.

DOE requests respondents provide the following information at the start of their response to this RFI:

- Company/institution name
- Company/institution contact
- Contact’s address, phone number, and email address

If a FOA related to this RFI is released, it will be posted at Grants.gov (<http://www.grants.gov>) and at FedConnect (<http://www.fedconnect.net>). Entities who may be interested in applying for awards

under a possible FOA are strongly encouraged to register at these sites to receive notification of announcement regarding the FOA. If DOE decides to issue a FOA, applications can only be submitted through Grants.gov.