

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

Request for Information: DE-FOA-0002686

## **Bipartisan Infrastructure Law - Rare Earth Element Demonstration Facility**

**ISSUE DATE:** February 14, 2022

**Program Area:** Office of Fossil Energy and Carbon Management

**RESPONSES DUE:** March 31, 2022

### **Description:**

This is a Request for Information (RFI) issued by the U.S. Department of Energy's (DOE) Office of Fossil Energy and Carbon Management (FECM) and the National Energy Technology Laboratory (NETL).

The intent of this RFI is to obtain public input in support of a DOE plan to design, construct, and build-out a demonstration facility enabling domestic rare earth element (REE) and critical mineral (CM) supply chains for commercial commodities and national defense industries as well as for clean energy technologies in support of the administration's goals of decarbonizing the electricity sector by 2035 and the economy by 2050. This facility will also provide environmental benefits using feedstocks derived from acid mine drainage, mine wastes, or other deleterious materials. Input is also sought regarding the economic and commercial feasibility and viability as well as the social and environmental justice implications of the demonstration facility.

The anticipated related activities support the [Bipartisan Infrastructure Law](#) (BIL)<sup>1</sup> goals of delivering more clean energy, create new, good-paying jobs and lowering costs for American families and workers by guiding the Nation towards a 100% carbon pollution-free electricity sector by 2035 and net-zero economy by 2050. It is the policy of the Biden Administration that:

*"...the Federal Government should pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. Affirmatively advancing equity, civil rights, racial justice, and equal opportunity is the responsibility of the whole of our Government. Because advancing equity requires a systematic approach to embedding fairness in decision-making processes, executive departments and agencies (agencies) must recognize and work to redress inequities in their policies and programs that serve as barriers to equal opportunity.*

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<sup>1</sup> Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (Nov. 15, 2021) [hereinafter BIL].  
<https://www.congress.gov/bill/117th-congress/house-bill/3684/text>

*“By advancing equity across the Federal Government, we can create opportunities for the improvement of communities that have been historically underserved, which benefits everyone.”<sup>2</sup>*

As part of this whole of government approach, activities related to this RFI seek to encourage the meaningful engagement with and participation of underserved communities and underrepresented groups. Moreover, consistent with Executive Order 14008, any future calls for proposals will be designed to benefit underserved and overburdened communities, including providing workforce opportunities in low- and moderate-income communities; encouraging partnerships with universities and laboratories to spur innovation and drive down costs; partnering with Tribes; and taking into account greenhouse gas and other environmental emissions reductions throughout the manufacturing process and supply chain logistics.

Under the BIL, DOE is required to fund a REE demonstration facility. The information being sought is intended to assist DOE in the development of priorities and initiatives to enable the design, construction, and build-out of a facility to demonstrate the commercial feasibility of a full-scale, integrated REE extraction, separation, and refining facility. The information collected will also inform the type of information needed to determine whether a project is successful.

The information collected may be used for internal DOE planning and decision-making purposes across its research, development, demonstration, 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 opportunities; and determining the potential for clean energy and carbon management careers, all while considering potential impacts to local communities (including environmental justice<sup>3</sup> and energy transition communities).

Organizations that respond to the RFI can respond to all or only a portion of the RFI. This is solely a request for information and is not a Funding Opportunity Announcement (FOA). DOE is not accepting applications to this RFI, nor will DOE reimburse any of respondents’ costs in preparing a response.

## **Background:**

The United States imports greater than 80% of its REE demand from offshore suppliers. Similarly, for at least 30 of the 35 CM, the United States imports more than half its consumption, with no domestic onshore production of 14 CMs.<sup>4</sup> As evidenced by several Executive Orders,<sup>5,6</sup> as well as the recent BIL that was enacted on November 15, 2021,<sup>7</sup> transitioning the production of these materials and their associated supply chains back to the United States is a strategic priority.

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<sup>2</sup> Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, January 20, 2021.

<sup>3</sup> 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. <https://www.epa.gov/environmentaljustice>

<sup>4</sup> [Mineral Commodity Summaries 2021 \(usgs.gov\)](https://www.usgs.gov/minerals/mineral-commodity-summaries-2021)

<sup>5</sup> Executive Order 13817, A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals, December 20, 2017. See also U.S. Dep’t of the Interior, Final List of Critical Minerals 2018, 83 Fed. Reg 23295 (May 18, 2018).

<sup>6</sup> Executive Order 14017, America’s Supply Chain, February 24, 2021.

<sup>7</sup> BIL, *supra* note 1.

Part of the goal of this and related DOE activities (such as the Critical Materials Institute<sup>8</sup>) and those elsewhere in the government (such as the Defense Production Act Title III<sup>9</sup>) is to help build out domestic supply chains for REEs from a diversity of sources.<sup>10</sup> Other near-term planned private sector investments will help establish the first domestic midstream processing capabilities for REEs in the U.S. in several decades. Together, these public and private sector investments form a nationwide effort that can help provide a firm foundation for resilient, sustainable, and responsible REE supply chains.

Section 40205 of the BIL amended Section 7001 of the Energy Act of 2020 (42 U.S.C. 13344) and directs the establishment of a rare earth demonstration facility that will include a full-scale integrated rare earth element extraction and separation facility and refinery. In coordination with the Office of Fossil Energy and Carbon Management (FECM),

*“(1) ... the Secretary shall fund, through an agreement with an academic partner, the design, construction, and build-out of a facility to demonstrate the commercial feasibility of a full-scale integrated rare earth element extraction and separation facility and refinery.*

*“(2) FACILITY ACTIVITIES.—The facility established under paragraph (1) shall—*

*“(A) provide environmental benefits through use of feedstock derived from acid mine drainage, mine waste, or other deleterious material;*

*“(B) separate mixed rare earth oxides into pure oxides of each rare earth element;*

*“(C) refine rare earth oxides into rare earth metals; and*

*“(D) provide for separation of rare earth oxides and refining into rare earth metals at a single site.”<sup>11</sup>*

Additionally, Section 41003 of the BIL identifies related efforts for rare earth Minerals Security.

To address the BIL requirement for a demonstration facility, this RFI, *Bipartisan Infrastructure Law - Rare Earth Element Demonstration Facility*, seeks information from industry, academia, government agencies, investors, customers, relevant communities, and other key stakeholders to comment on DOE’s vision and approach, shown in Exhibit 1 and Exhibit 2, for design, construction, and operation of a first-of-a-kind, domestic, demonstration facility that produces REEs and CMs from domestic resources that include unconventional<sup>12</sup> and secondary<sup>13</sup> sources, such as coal waste materials. This effort focuses on rebuilding the U.S. leadership role in the economically viable, environmentally benign extraction, separation, and processing technologies arena that support the generation of sustainable U.S. domestic supply chains for onshore production of REEs and CMs for the commercial commodities, clean energy, and national defense industries.

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<sup>8</sup> <https://www.ameslab.gov/cmi>

<sup>9</sup> <https://www.businessdefense.gov/DPA-Title-III/Overview/>

<sup>10</sup> Tegler, E. (2021, February 26). The U.S. Is Trying To Secure Rare Earth Elements For National Security. That Goes Beyond Simple Investment. *Forbes*. Retrieved from <https://www.forbes.com/sites/ericteglar/2021/02/26/the-us-is-trying-to-secure-rare-earth-elements-for-national-security-that-goes-beyond-simple-investment/?sh=3050944a5c53>

<sup>11</sup> BIL, *supra* note 1 at § 40205.

<sup>12</sup> Unconventional feedstock sources are natural resources that require greater than industry-standard levels of technology or investment to be recovered. Resources may become economical through co-production of more than one mineral or metal from the feedstock. Source: *Unconventional Petroleum Resources – Geoscience Australia*. <https://www.ga.gov.au/scientific-topics/energy/resources/petroleum-resources/unconventional-resources>

<sup>13</sup> Secondary feedstock sources are materials obtained from the recovery of waste products. Source: *U.S. Congressional Research Service, Critical Minerals and U.S. Public Policy, R45810 (Washington, D.C., June 28, 2019)*.

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## Exhibit 1 – DOE Vision

Catalyze development of an economic, competitive, sustainable domestic REE supply from unconventional and secondary sources capable of supporting:

- ~10% of current U.S. demand<sup>14</sup> (1,000 t<sup>15</sup> Mixed Rare Earth Oxides/yr) by 2025-6 (initiate construction)
  - 2027-8 (operation) –
- 10% of projected future U.S. demand<sup>16</sup> (10,000 t/yr) by 2035 –
- 20% of projected future U.S. demand (20,000 t/yr) by 2040 –

Optimize potential value of natural resources across coal basins throughout the United States by 2030.

Pursue environmental and economic justice by remediating land and water, while emphasizing equitable, high quality job creation that is family sustaining in highly-impacted communities.

### Rare Earth Element and Critical Minerals Production

1-3 t<sup>17</sup> Mixed Rare Earth Oxides/Salts (MREO/MRES)/day at a minimum concentrate purity of 75wt% (preferred 98wt% or greater).

Conversion of 1-3 t MREO/MRES/day concentrate to high purity (99.0wt% - 99.99wt%) individual or binary rare earth metals (REMs).

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<sup>14</sup> USGS Mineral Commodity Summaries, January 2021.

<sup>15</sup> t = tonnes = metric tons

<sup>16</sup> 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>

<sup>17</sup> 1-3 t/day or ~360-1000 t/yr is ~10% of the 2019 U.S. demand, which is the production basis used in DOE FECM-NETL's RFP Solicitation 89243320RFE000032, Issued April 22, 2020.

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## Exhibit 2 – DOE Proposed Approach

DOE intends that this first-generation REE demonstration facility will utilize:

- Conventional separations technologies including physical beneficiation, chemical separation including, but not limited to, hydrometallurgy, solvent extraction for the separation of individual REE-CM oxides, and reduction to metals, with subsequent alloying of metals. Further advanced technologies will be encouraged, but only if tested and ready to be applied at demonstration scale.
- Unconventional feedstock resources including raw acid mine drainage (AMD) fluids and precipitates, mine wastes (refuse tailings), and/or other deleterious materials. Recycled materials as electronic wastes will not be included.

The demonstration facility will have the capability of extracting, separating, and recovering REEs and CMs from at least one unconventional or secondary source, but it may have the capability to process materials from multiple feedstock resources, demonstrating the capabilities of feedstock flexibility. REE recovery will be the primary focus of the facility with co-recovery of other CMs permitted; CM recovery (without REE recovery) is not the focus. Production quantities and concentrate material purity are identified in Exhibit 1.

DOE expects the domestic demonstration facility to have a vertically integrated (located at a single site) facility that includes the primary central processing and refining. A hub-and-spoke configuration with satellite extraction sites, in addition to the primary central processing and refining facility, may be needed to ensure sufficient throughput for the demonstration facility.

DOE expects that the award recipient will, as appropriate or as directed by DOE, coordinate or collaborate with other recipients of DOE REE/CM funding. DOE expects that the award recipient of the REE demonstration facility will include meaningful engagement with disadvantaged communities (DACs)<sup>18</sup>, including, but not limited to, Tribal communities and communities with environmental justice concerns, to gather input before, during, and after construction and during operation, especially addressing environmental and environmental justice-related issues. The demonstration facility award recipient will seek and maximize opportunities for environmental justice when identifying project site location(s) and will ensure workforce development necessary for operation of the demonstration facility. All National Environmental Policy Act (NEPA) and other environmental requirements will be applicable.

Respondents are encouraged to recognize DOE's commitment to the Justice40 Initiative, which 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. DOE has identified the following eight policy priorities to guide DOE's implementation of Justice40 in DACs: (1) decrease energy burden; (2) decrease environmental exposure and burdens; (3) increase access to low-cost capital; (4) increase the clean energy job pipeline and job training for individuals; (5) increase clean energy enterprise creation (e.g., minority-owned or diverse business enterprises); (6) increase energy democracy, including

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<sup>18</sup> Disadvantaged communities are the focus of the Justice40 initiative, and the Justice40 Interim Guidance provides a broad definition of DACs: <https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf>

community ownership of energy assets; (7) increase parity in clean energy technology access and adoption; and (8) increase energy resiliency.

An Association for the Advancement of Cost Engineering (AACE) Cost Estimate Class Level 3 or comparable due diligence is expected to be developed and made available for assessment by DOE FECM-NETL, prior to final selection and award for construction, operation, and production of REE and CM materials at the production quantities and concentrate material purity identified in Exhibit 1. Cost, contingencies, and demonstration facility construction and operational timeline will be required. A phased approach, with a first phase to ensure an AACE level 3 cost estimate before final selection, is currently planned.

The REE demonstration facility will target production of REEs and CMs that may support multiple industrial supply chains, including but not limited to the magnet, electric vehicle, wind, or semiconductor industries. Supply chains will include metal and alloy production for onshore manufacturing of intermediate and/or end products/equipment for the high-tech consumer, clean energy, and/or national defense industries.

DOE anticipates that off-take agreements will be developed for the purchase of the REEs and CMs produced by the demonstration facility to support operational costs. This may include sale of these materials to domestic magnet manufacturers, battery producers, or to the Department of Defense (DOD) for defense use. Alternately, these materials will be stockpiled and retained as part of a domestic REE and CM repository for defense or clean energy purposes.

It is expected that limited-to-no advanced research and development (R&D) technology development will be needed to support design through operation of this first-generation REE demonstration facility. Cost share by the award recipient is anticipated to be 50%.

A desired feature of the demonstration facility will be the ability to accommodate slipstreams for various process circuits<sup>19</sup> for testing of materials, sensors, advanced process concepts, etc., that could be developed by either the award recipient and/or other organizations, to demonstrate their performance and/or life under actual process operating conditions.

It is anticipated that the demonstration facility will be operated for a minimum number of calendar years after completion of facility construction, as well as shakedown of all processing circuits to demonstrate their full functional operational capabilities. After completion of the executed project award, continued operation of the demonstration facility may be considered through private-public-partnership involvement and potential off-take agreements or price supports for the produced REE-CM materials.

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<sup>19</sup> A processing circuit is defined as a reactor(s), system or facility that produces, for example, mixed rare earth oxides/salt concentrates. A subsequent processing circuit may consist of a reactor(s), system or facility that produces individually separated, high purity REOs and/or CMs. Similarly, a subsequent processing circuit may consist of a reactor(s), system or facility that is designed for the reduction of REOs to individual or binary metals for alloying and/or further refining.

## Requested Information:

The purpose of this RFI is to solicit feedback from industry members, investors, developers, academia, research laboratories, government agencies, potentially impacted communities, customers, and other stakeholders on a REE demonstration facility and its associated location(s) all while considering environmental justice, energy transition, Tribes, and other impacted communities. While DOE's preference is that respondents address all items below, responses that address only a subset of the questions/comments would still be helpful and are welcomed.

### **A. Facility Definition**

1. Do you have an existing facility that can be used/modified-retrofitted to meet the requirements of the demonstration facility? If appropriate, describe your facility.
2. Please define demonstration-scale as you see it and explain why.
3. Regarding REE demonstration facility sizing, please address the following:
  - a. Please comment as to whether a demonstration facility is the correct size in view of where current technology development is for REE and CM extraction, separation, and recovery from unconventional feedstock resources.
  - b. Please discuss your thoughts on whether an intermediate-scale facility is needed to be constructed and operated in advance of, or in parallel with, the design, construction, and operation of the demonstration-scale facility.
    - i. Please define "intermediate-scale" from your perspective. Please discuss whether your process is ready for demonstration.
4. Regarding feedstocks, please address the following:
  - a. Besides AMD fluids and precipitates and mine wastes (refuse tailings), please comment as to what types of materials should be considered as "deleterious materials" to be used as unconventional feedstock resources.
  - b. Does your prospective or current facility provide for the use of multiple feedstock resources?
    - i. If yes, please describe the resources and quantity of these resources that would be used during operation.
    - ii. If no, please describe possible process and/or facility modifications, if any, that would be needed to assure successful operation of your facility should multiple feedstock materials be used.
  - c. Would including the ability to incorporate multiple feedstocks in your demonstration facility mitigate risks or increase them? Please specify affected risks and elaborate.
5. Related to the possibility of a user facility, please comment on the following:
  - a. Would your prospective facility be able to support slipstream testing of advanced concepts, processes, sensors, and/or equipment being developed by external contractors who would not be supported under award for the development and operation of your demonstration facility? If so, please comment.
    - i. If yes, what modifications, if any, would be required?
      - a. Please estimate the cost of the modifications.
      - b. Please estimate the schedule impact of the modifications. Would the overall timeline of the demonstration facility coming online be impacted? If yes, please explain.
    - ii. If no, what are the impediments? Please elaborate. Please provide your thoughts on what it would take to overcome these impediments (including cost and schedule).

- iii. Would a phased approach be necessary such as beginning operations without the user facility and incorporating it at a later time? If so, when is the appropriate time?
  - b. What concerns, if any, do you have regarding the possible use of the demonstration facility as a user facility with slip streams for R&D projects? Please be as explicit as you can.
- 6. After DOE's involvement in the demonstration facility concludes, what obstacles would need to be overcome for you (or another stakeholder) to continue operating the facility commercially to establish an enduring domestic supply of REEs and CMs?

## **B. Research and Development Needs**

- 1. Are the extraction, separation, recovery, and refining technologies in your prospective facility ready for demonstration or is additional R&D needed?
  - a. If additional R&D is needed: please answer the following:
    - i. Describe the additional R&D needed.
    - ii. Describe the cost associated with the additional R&D.
    - iii. Describe the schedule impact due to the additional R&D.
      - a. Provide your thoughts on whether or not the R&D could be performed concurrently with other steps to design, construct, or build-out the demonstration facility?
- 2. Based on where your technology readiness levels (TRLs)<sup>20</sup> and technoeconomic assessments (TEAs) are for the various demonstration facility processing circuits at this time, please address the following:
  - a. Describe what would be needed for the design, construction, and operation of a follow-on commercial-scale REE and CM facility.
  - b. Define commercial-scale, and what quantities of REEs and CMs would be produced at a commercial-scale facility.
  - c. Please address what TEAs have been or will be conducted for the host site(s) and/or alternate processing circuit site(s) that you would propose.

## **C. Location, Cost, Schedule**

- 1. Related to facility location, please address the following:
  - a. What location(s) would you propose for a facility and why?
  - b. How does that specific location or the surrounding region impact (positively or negatively) the building of the facility or accessing relevant feedstocks or supply chains?
  - c. What siting and environmental justice concerns have been considered? Please provide specific concerns, e.g., siting, transportation, exposure to waste from the demonstration facility, other public health impacts, etc.
  - d. Please identify all NEPA/environmental assessment(s) and/or permitting that has already taken place or is/are being conducted for the host site(s) and/or alternate processing circuit site(s) that you would propose. To the extent possible, please also identify anticipated upcoming environmental analyses and permitting actions.
- 2. Please discuss if your prospective facility would consist of processing feedstock materials through production of critical rare earth metals for alloying, at a centralized, vertically integrated location. If not, please describe your prospective facility's configuration and the rationale for its configuration.

<sup>20</sup> [https://www.energy.gov/sites/prod/files/em/Volume\\_I/O\\_SRP.pdf](https://www.energy.gov/sites/prod/files/em/Volume_I/O_SRP.pdf)



3. Related to schedule, please address the following:
  - a. For a demonstration facility, please comment as to what you would consider as reasonable in regard to:
    - i. schedule,
    - ii. test duration, and
    - iii. key milestones.
  - b. What do you believe to be the specific critical path, including lead items or activities that will most influence the initial start-up of the demonstration facility?
4. Related to estimated costs, please address the following:
  - a. Have you conducted an AACE Class 3 cost/schedule front-end engineering and design (FEED) study or approximate equivalent for a 1-3 t MREO/day or similar size demonstration facility? If so, please comment on the cost and time to conduct the FEED study and its results, including the projected cost for a full-scale demonstration facility.
  - b. What should be the Rough Order of Magnitude (ROM) cost estimate (capital and operating expenditures) for your prospective demonstration facility? Please include a description of the assumptions used as a basis for the ROM.
  - c. What is your estimate for the cost of construction work for each stage of development and integration especially if you commented previously that you felt an intermediate-scale facility was needed?

**D. Equity, Environmental, and Energy Justice (EEJ) Priorities and Community Engagements, Benefits, and Impacts**

1. What strategies, policies, and practices can project developers deploy to ensure that the goals of Justice40 are achieved? How should these be measured and evaluated?
2. What equity, environmental, and energy justice concerns or priorities are most relevant to local communities around your proposed facility? How have/can these concerns or priorities been/be addressed?
3. What measures should project developers take to ensure that harm to communities with environmental justice concerns are mitigated?
4. Regarding community engagement, please address the following:
  - a. Are the community organization and industry partners engaged in this effort clearly organizations that represent underserved communities as a core element of their mission?
  - b. How can the project team ensure community-based stakeholders/organizations are engaged and included in the planning, decision-making, and implementation processes (e.g., requiring community-based organizations are part of the project team)?
  - c. How will you support meaningful and sustained engagement with relevant disadvantaged communities?
  - d. Please provide other comments, if any, you would like to make regarding community engagement.
5. Regarding community benefits and impacts from your proposed facility, please address the following:
  - a. How will the community benefit from the construction and operation of a REE and CM production facility? What are the co-benefits of the project not captured by revenues of the operation (e.g., educational, environmental, and economic benefits)? Please explain.
  - b. Are the local communities, in particular disadvantaged communities, interested in or supportive of the construction and operation of a REE and CM production facility?

- i. If a community organization or advocate, how can the local community's needs best be addressed?
- ii. If industry or other, please summarize existing efforts at community engagement/support for development in the community being considered. We encourage the creation and inclusion of community benefits agreements that articulate the community benefits a developer agrees to deliver in return for community support of the project.

**E. Target Market, Business Model, and Partnerships**

1. Describe what permits, licenses, or intellectual property rights are in place or are needed to build and operate a REE demonstration facility.
2. Please describe your organization's Financial/Business Model for capital financing and the ongoing economic production of 1-3 t MREO/day and conversion to refined materials at the intended quality and/or purity. State intended quality and/or purity targets.
3. Regarding required cost share, please address the following:
  - a. As discussed in Exhibit 2, cost share for the demonstration facility is anticipated to be 50%. Please discuss your ability or inability to cost share 50% of your proposed demonstration facility. If you believe that 50% cost share is not achievable, what cost share percentage do you believe is reasonable/achievable?
  - b. Describe how you would provide/allocate your cost share and how any borrowings would be repaid, if applicable.
4. Please clearly articulate, with concrete actions, how regional economic growth and its benefits will be shared with underserved populations.
5. Please comment on your Business Plan with respect to the sale and distribution of the REE and CM materials that are produced in your facility. If these materials are sold during the project period, do you have a preference for how the program income would be allocated back to the project (e.g., addition, cost share, or deduction)?
6. Regarding supply chains and byproducts, please address the following:
  - a. Please comment as to what supply chains you expect will be supported by such a REE demonstration facility. Please identify any customers or customer classes (e.g., magnets, electronics, batteries, etc.). Provide information on any market studies conducted that demonstrate a viable demand for REE demonstration facility products.
  - b. Do you expect that products other than REE or CM will be produced from the feedstock(s) used in your prospective facility? Will these be outputs of your facility, and have/will you find markets for such products? If so, please explain.
  - c. Have you considered the economics/value of producing metal vs. producing separated rare earths and critical minerals that could be sold to an off-taker who already has commercial facilities to highly refine those separated products and to manufacture products (e.g., a magnet manufacturer)? If so, please discuss.
7. As it relates to partnerships, please address the following:
  - a. Have you established partners/relationships needed to achieve the vision of a primarily U.S.-sourced REE and CM industry?
  - b. Please comment on your ability to design, construct, and operate the demonstration facility using domestic entities (organizations incorporated or otherwise formed under the laws of a State or territory of the United States).
  - c. Please identify all partners (e.g., industry, academia, government, etc.) that would be part of your team. Also address:

- i. Are Minority Business Enterprises and Minority Serving Institutions engaged; and if so, what role do they play?
  - ii. Are foreign entities required, and if so, what role(s) do you propose they have?
    - a. Would these partnerships facilitate entry into either/both domestic and international supply chains? If so, please discuss.
  - iii. Please discuss the roles and functions of all participating industry(s), and how you would implement your full vision for the design, construction, and operation of the demonstration facility to include these industrial participants.
  - iv. Please describe your existing partnerships with organizations performing remediation and/or reclamation, and the potential users and use of the products or waste streams from the demonstration facility.
  - v. What is the expected role of the BIL-required academic partner (such as a prime or subrecipient/subcontractor)?
- d. Do you envision foreign national participation will be needed for your organization or any of your partners in the design, construction, and operation of the demonstration facility including, but not limited to, the integration of conventional separation through refining and alloying technologies, advanced technology development, design and configuration of reactor systems, process circuit operating parameters, facility operation, and market and supply chain assessment?
- i. If so, please discuss and, at a minimum, address what role(s) you propose they will have. NOTE: DOE concurrence may be required before a foreign national can participate in the performance of any work under an award. A “foreign national” is defined as any person who is not a United States citizen by birth or naturalization.

**F. Iron, Steel, Manufactured Products, or Construction Materials and Clean Energy Jobs**

As stated in the Description, this RFI may inform a future BIL-related financial assistance FOA for a REE demonstration facility. DOE is collecting the following information on all BIL RFIs to help inform the implementation of the requirements set forth in the BIL. The questions asked herein are similar to other BIL RFIs.

1. Does any of the work for which you expect to apply for DOE Financial Assistance involve the construction, alteration, maintenance, or repair of any of the following:
  - a. Roads, highways, and bridges;
  - b. Public transportation;
  - c. Dams, ports, harbors, and other maritime facilities;
  - d. Intercity passenger and freight railroads;
  - e. Airports;
  - f. Water systems, including drinking water and wastewater systems;
  - g. Electrical transmission facilities and systems;
  - h. Utilities;
  - i. Broadband infrastructure; or
  - j. Buildings and real property.
2. If your answer to question 1 is yes, please identify any iron, steel, manufactured goods/products or construction materials which are crucial to this work, and whether you would normally procure those items domestically or from a foreign source.

3. For any item you indicate that you would normally procure from a foreign source, please specify to the best of your ability whether you would avoid seeking to procure these items domestically due to lack of availability or cost.
4. In what ways, if any, do you anticipate a REE demonstration facility project could impact your workforce? For example:
  - a. To what extent do you anticipate job creation or changes in job quality?
  - b. To what extent do you anticipate the creation of construction jobs? Non-construction jobs?
5. Would you consider working with local coalitions to find ways to match regional workforce resources with hiring needs?

**G. Other**

1. Please provide feedback on DOE's vision and approach shown in Exhibit 1 and Exhibit 2.
2. Please discuss what would be viewed by industry as success criteria for design, construction, and length of time for operation of the demonstration facility.
3. Please describe any issues that should be addressed to enable the implementation of the Rare Earth Element Demonstration Facility under Section 40205 of the BIL including the following:
  - a. Legal,
  - b. Regulatory,
  - c. Policy,
  - d. Environmental justice concerns,
  - e. Other.
4. Provide any other comments or information that you feel are important/relevant, but that are not otherwise covered here, including any other questions you have that would need to be answered to enable the implementation of the Rare Earth Element Demonstration Facility under Section 40205 of the BIL.

## **DISCLAIMER AND IMPORTANT NOTES:**

This is solely a request for information and is not a FOA. DOE is not accepting applications to this RFI, nor will DOE reimburse any of respondents' costs in preparing a response. 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 announcement for applications 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 the 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 DOE to any further actions related to these topics.

## **PROPRIETARY INFORMATION:**

Because information received in response to this RFI may be used to structure future programs and FOAs and/or otherwise be made available to the public, **respondents are strongly advised NOT to include any**

**information in their responses that might be considered business sensitive, proprietary, or otherwise confidential.** If, however, a respondent chooses to submit business sensitive, proprietary, or otherwise confidential information, it must be clearly and conspicuously marked as such in the response.

Responses containing confidential, proprietary, or privileged information must be conspicuously marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. Federal Government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose.

**Confidential Commercial and Financial Information.** Consistent with 10 CFR 1004.11, DOE requires that any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: One copy of the document marked “Confidential Commercial and Financial Information” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination. The copy containing confidential commercial and financial information must include a cover sheet marked as follows identifying the specific pages containing confidential, proprietary, or privileged information:

**Notice of Restriction on Disclosure and Use of Data:**

Pages [*list applicable pages*] of this response may contain confidential, commercial, or financial information that is exempt from public disclosure. Such information shall be used or disclosed only for the purposes described in this RFI #DE-FOA-0002686. 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 confidential, proprietary, or privileged information must be marked as follows: “Contains Confidential, Commercial, or Financial Information Exempt from Public Disclosure” and (2) every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with [[double brackets]] or highlighting.

**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 the Government 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 [REEdemoRFI@netl.doe.gov](mailto:REEdemoRFI@netl.doe.gov), with the subject line “DE-FOA-0002686-RFI” no later than **8:00 p.m. (ET) on March 31, 2022**. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25 MB be compressed (i.e., zipped) to ensure message delivery. Responses must be provided as a Microsoft Word

(\* .docx) or Adobe Acrobat (\*.pdf) attachment to the email, and no more than 15 pages in length, 12-point font, 1-inch margins. Only electronic responses will be accepted.

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:

- Respondent name
- Respondent Contact's address, phone number, and e-mail 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 announcements regarding the FOA. If DOE decides to issue a FOA, applications can only be submitted through Grants.gov.

**If a FOA related to this RFI is released, there are several one-time actions an applicant must complete to submit a Full Application in Grants.gov** (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the System for Award Management (SAM), register with Grants.gov, and register in FedConnect.net to submit questions). Applicants who are not registered with SAM and Grants.gov, should allow at least 44 days to complete these requirements. It is suggested that the process be started as soon as possible.

- **DUNS** - Applicants must obtain a DUNS number (including the plus 4 extension, if applicable) from Dun and Bradstreet (D&B). DUNS website: <http://fedgov.dnb.com/webform>.
- **SAM** - Applicants must register with SAM at <http://www.sam.gov/> prior to submitting a Full Application in response to an FOA. NOTE: Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Failure to register with SAM will prevent an organization from applying through Grants.gov. **The SAM registration must be updated annually.** More information about SAM registration for applicants is found at: [https://www.sam.gov/sam/transcript/Quick Guide for Grants Registrations v1.7.pdf](https://www.sam.gov/sam/transcript/Quick%20Guide%20for%20Grants%20Registrations%20v1.7.pdf).
- **Grants.gov** - Applicants must register with Grants.gov and set up a Workspace. An applicant cannot submit a Full Application through Grants.gov unless it is registered. Please read the registration requirements carefully and start the process immediately.
  - 1) The Authorized Organizational Representative (AOR) must register at: <https://apply07.grants.gov/apply/OrcRegister>
  - 2) An email is sent to the E-Business (E-Biz) POC listed in SAM. The E-Biz POC must approve the AOR registration using their MPIN from their SAM registration.

**More information about the registration steps for Grants.gov is provided at:**

<https://www.grants.gov/web/grants/applicants/registration.html>

- **FedConnect.net** - Applicants must register with FedConnect to submit questions to an FOA. FedConnect website: [www.fedconnect.net](http://www.fedconnect.net).