



U.S. DEPARTMENT OF  
**ENERGY**

Fossil  
Energy



## Workshop on Rare Earth Element and Critical Mineral Production from Domestic Coal-Based Resources

December 11, 2019

Ronald Reagan Building and International Trade Center  
1300 Pennsylvania Ave. NW  
Washington, DC 20004

7:30 AM-8:00 AM **Registration**

8:00 AM- 8:20 AM **Welcome and Opening Remarks**

8:20 AM-8:40 AM **U.S. Government Perspectives**

8:40 AM-9:00 AM **Importance of a Domestic REE Industry**

9:00 AM-9:45 AM **Overview of DOE Rare Earth (REE) and Critical Mineral (CM) Activities**

- Overview of Rare Earth Deposit Types
- REE & CM from Domestic Coal-Based Resources
- Reusing & Recycling REE

**Summary:** Federal panel will provide an overview of REE deposits and DOE's rare earth (RE) and critical minerals (CM) programs—housed respectively within the Office of Fossil Energy (FE) and the Office of Energy Efficiency and Renewable Energy (EERE). The FE program, via NETL, is focused on the development of an economically competitive and sustainable domestic supply of REs and CMs. EERE's program, via the Critical Minerals Institute, is focused on reducing/eliminating materials criticality as an impediment to clean energy technology commercialization.

9:45 AM-10:00 AM **Charter for the Group**

- Overview, Scope, and Purpose for Today's Discussion
- Brief Introduction on Working with the DOE

10:00 AM-10:30 AM **Break**

10:30 AM-11:45 PM **Technical Challenges & Solutions for Coal-Based Materials**

- 10:30-10:40: Introduction of Overarching Challenges, Solutions, and State of the Industry
- 10:40-11:25: Moderated Discussion Panel
  - *Topics*
    - Extracting from Coal Feedstocks and Utilizing Waste Materials
    - Linking the Supply Chain: From Extraction to Separation into High Purity Products
    - Current Industry Technical Challenges

- Product Types: What do Pilot Plants Need to Produce to be considered a Success
- 11:25 – 11:45: Panel Question & Answer

**Summary:** Panelists from the public and private sectors will discuss the development of a RE and CM domestic supply chain from coal and related materials, highlighting the R&D challenges and potential solutions pathways. Current technical challenges within the industry will also be discussed, including how to link the different segments of the supply chain – from extraction to purification and reduction to metals.

11:45 PM -12:15 PM **Open Discussion on Scaling Domestic Production Technologies**

- **Discussion Topics**
  - Finding Idled or Under-Utilized Capacity Participants
  - Permitting, Regulations, and Reducing Barriers to “breaking ground”

12:15 PM-1:15 PM **Working Lunch Keynote**

1:15 PM-2:45 PM **Markets, By-Products, and Risk Reduction**

- **Discussion Topics**
  - Success stories: what’s worked for government initiatives in the past?
  - Creating Market Pull: market needs, Department of Defense perspectives
  - Co-production of other critical minerals to enable success
  - Industry needs from the DOE, USGS, and DOE national laboratory complex
  - Policy drivers that secure US markets for REE (Buy American, etc)
  - Q’s on incentive/structure of procurement

**Summary:** Public-private discussion on what the development of a comprehensive RE and CM domestic market should consider, an examination of government-led efforts which have succeeded in the past, and opportunities for risk reduction through creating “market pull” or diversified product slates.

2:45 PM-3:15 PM **Financing & Investor Requirements**

- **Discussion Topics**
  - Success stories: what’s worked for government initiatives in the past?
  - Creating Market Pull: market needs, Department of Defense perspectives
  - Co-production of other critical minerals to enable success
  - Industry needs from the DOE, USGS, and DOE national laboratory complex

**Summary:** Private industry led discussion on creating a favorable REE and CM financial environment.

3:15 PM - 3:45 PM **Break**

3:45 PM - 4:15 PM **Key Takeaways Overview & Discussion**

4:15 PM-4:40 PM **Working with the DOE**

- **5 Minute Overview Presentations**
  - Contracting and Financial Assistance with DOE
  - Licensing & Technology Transfer
  - Partnerships & Cooperative Research

- **Question & Answer Session**

**Summary:** Overview of DOE procurement and technology transfer mechanisms. Intended to be an open forum for participants who wish to know more about leveraging Federal R&D funding opportunities towards technology commercialization.

4:40 PM – 5:00 PM **Next Steps for DOE – Panel Discussion**

5:00 PM **Adjourn**

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