CRITICAL MATERIALS COLLABORATIVE
U.S. DEPARTMENT OF ENERGY

Critical Materials Collaborative

Forming Connections Across the Critical Materials Innovation Ecosystem

DOE Critical Minerals & Materials (CMM) Vision & Strategy

U.S. DEPARTMENT OF ENERGY

Vision:

- Build reliable, resilient, affordable, diverse, sustainable, and secure **domestic critical mineral and materials supply chains**.
- Support the clean energy transition and decarbonization of the energy, manufacturing, and transportation economies.
- Promote safe, sustainable, economic, and environmentally just solutions to meet current and future needs.

CMM Strategies:

https://www.energy.gov/critical-minerals-materials

DOE is an integral part of an All-of-Government Strategy

The “Electric Eighteen”

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Critical Materials are Vital to the Energy Transition, Climate Goals, and US Competitiveness

Neodymium, Praseodymium, Dysprosium, & Terbium	**Magnets** for wind turbine generators & EV motors
Cobalt, Lithium, Graphite, Nickel & Fluorine	**Batteries** for electric vehicles & grid storage
Iridium & Platinum	**Electrolyzers** for green hydrogen production & **fuel cells** used energy storage
Gallium & Silicon Carbide*	**Semiconductors** enable high voltage power & efficient lighting
Magnesium & Aluminum	**Lightweight alloys** in transportation
Silicon*	**Solar panels**, lightweight alloys, electrical steel
Copper* & Electrical Steel*	Wind turbine **generators** & EV **motors**

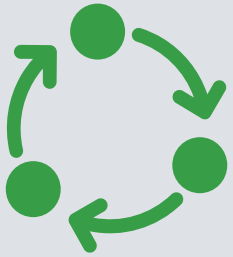
Goals

- **100% clean electricity by 2035**
- **Net-zero economy by 2050**
- **50% EV adoption by 2030**
- **30 GW offshore wind by 2030**
- **Cost of Clean Hydrogen $1/kg by 2031**

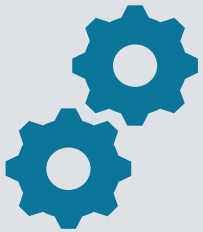
**Not on the U.S. Geological Survey Critical Minerals List*

Innovation: The Path to Globally Competitive Supply Chains

- Increase domestic supply to combat climate change and address national security needs
- Respond to challenges and opportunities
- Reduce vulnerabilities in our supply chains



- Increase efficiency and circularity
- Decrease environmental and health impacts



- Connect innovation solutions to realize real-world impact

What is the CMC?

A **new mode of connection** created by the U.S. Department of Energy (DOE) to increase communication and coordination between the U.S. government and the research communities wor king on critical materials projects.

Creates partnerships with industry, academia, national labs, and others to expand access to world-class expertise, capabilities, and facilities as part of a growing ecosystem.

Accelerates the commercialization and deployment of innovative solutions to develop globally competitive, environmentally responsible, and sustainable critical material supply chains.

The CMC connects DOE's diverse critical minerals and materials portfolio with industry and beyond, funding and supporting real-world innovation through each stage of the RD&D pipeline.

Why a Collaborative?

2010

DOE completed its **first Critical Materials Strategy**, building off decades of basic materials research and catalyzing 10+ years of basic and applied critical materials research, development, demonstration, and deployment (RD&D) at every stage in the supply chain.

2013

The **Critical Materials Innovation Hub (CMI)*,** was formed, which has been addressing critical materials challenges for a decade.

***formerly known as the Critical Materials Institute**

2020

The Energy Act of 2020 authorized the DOE Critical Materials Program to **expand critical materials work** to include RDD&D and to create a **Critical Materials Consortium** to be a centralized entity for multidisciplinary, collaborative critical materials research and development.

2021

The Bipartisan Infrastructure Law and the Inflation Reduction Act supercharged DOE's efforts **by investing more than $8 billion toward critical materials projects.**

2023

DOE created the CMC to align RD&D across the federal government, industry, and the research community, connecting innovation to basic science discovery and commercialization.

CMC Mission

Critical materials are vital to the clean energy transition.

The CMC is the connective tissue within the DOE Critical Materials Program and the U.S. government that aligns our applied RD&D portfolio with DOE climate goals and accelerates adoption of innovative solutions.

Building a robust **innovation ecosystem**

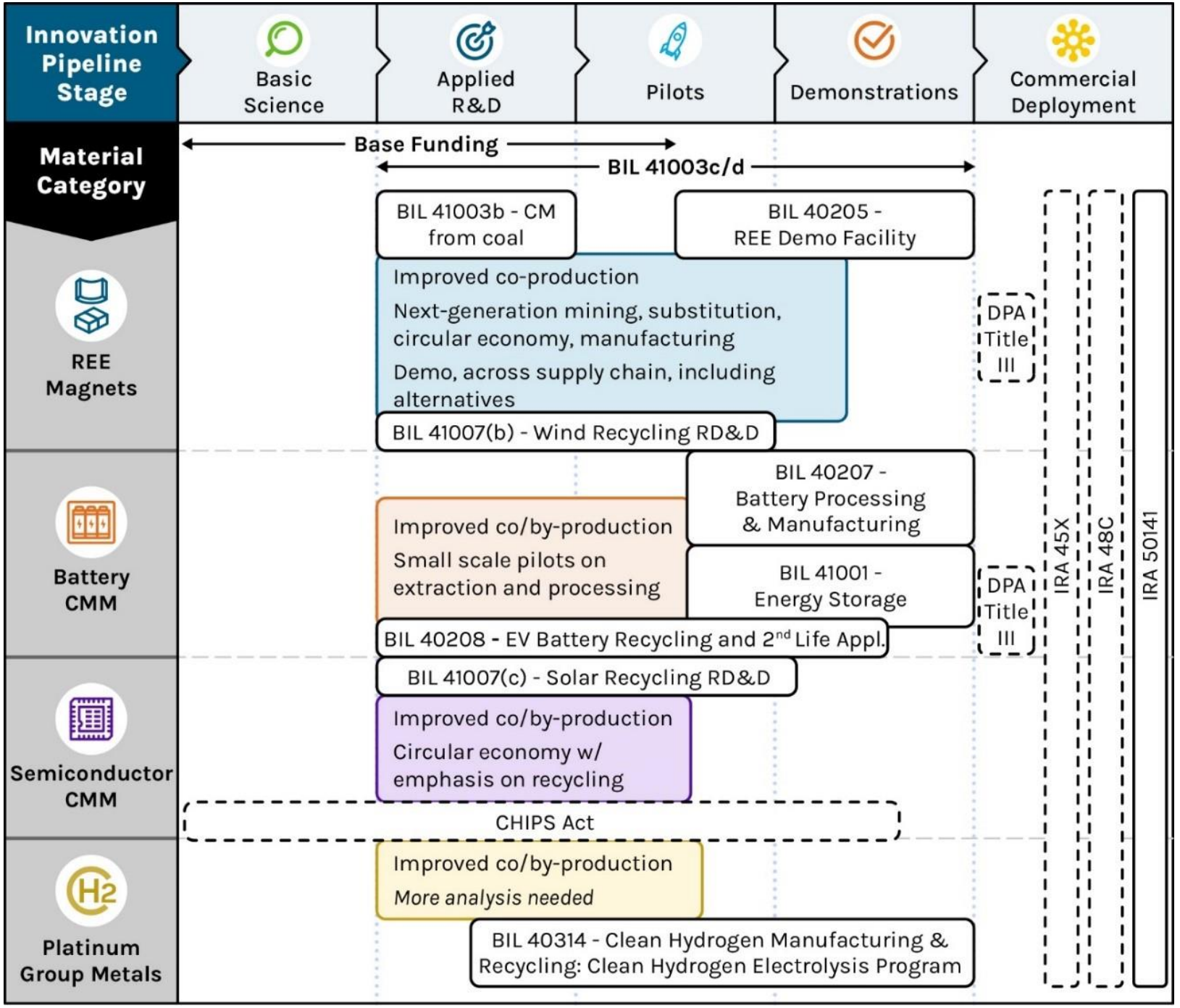
Training the critical materials leaders and workforce across multiple sectors

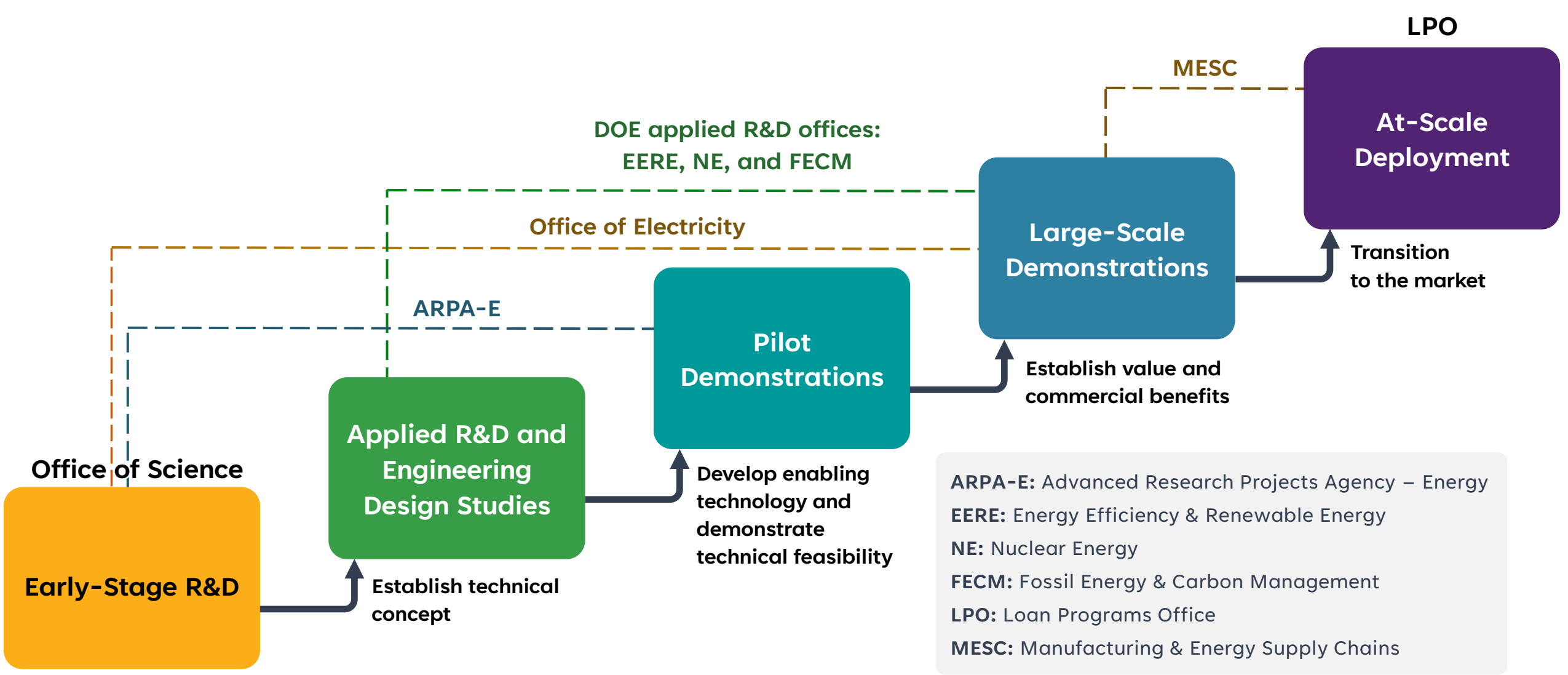
Enabling **industry adoption** of novel, cutting-edge technology

Laying the **scientific and technological groundwork** needed to address emerging challenges

CMC: A Powerful Connector

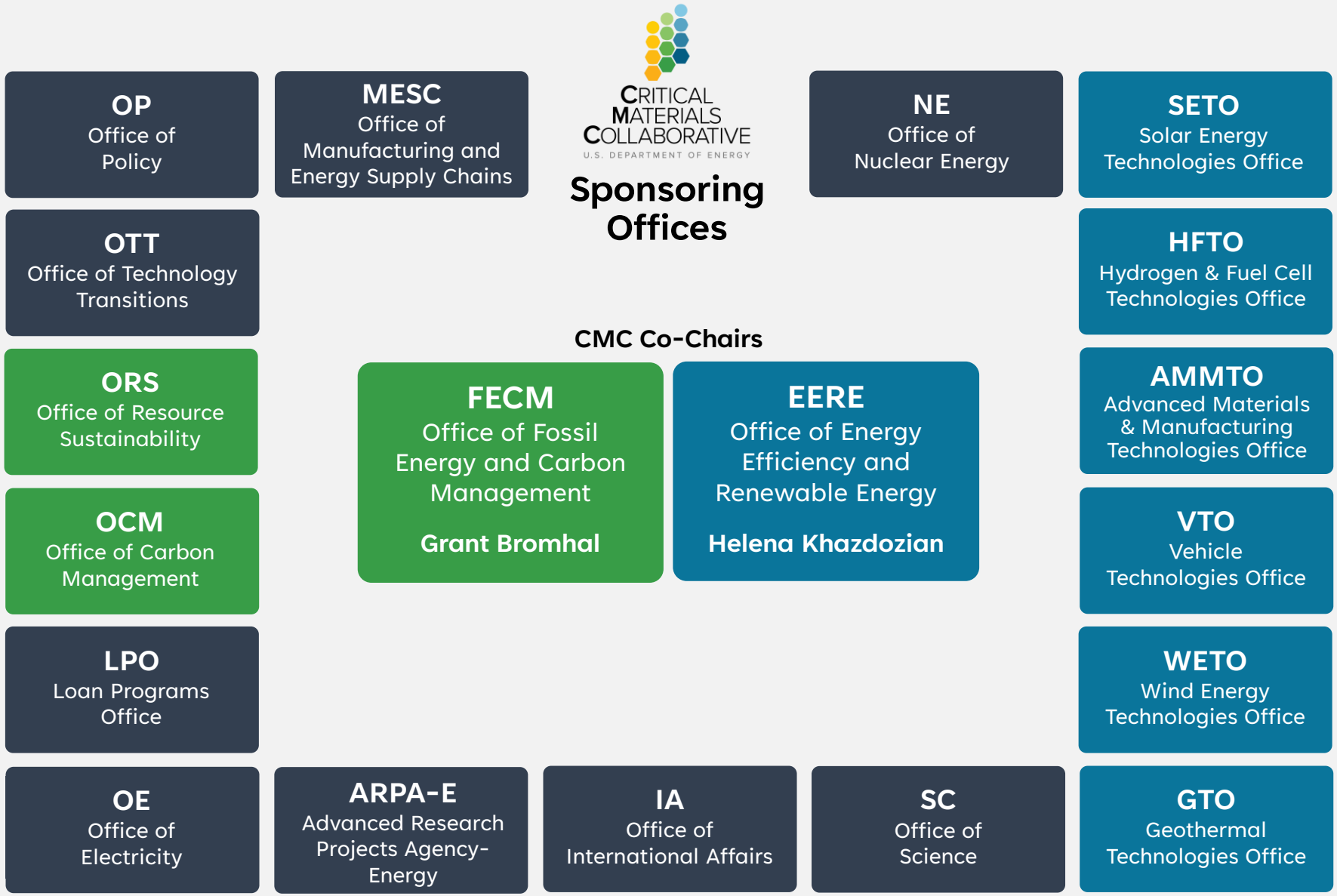
The CMC connects DOE's diverse critical minerals and materials portfolio with industry and beyond, funding and supporting real-world innovation through each stage of the RD&D spectrum.





Technology Transfer, Commercialization, & Research Investments: Office of Technology Transitions
Advance U.S. Energy Policy, Support U.S. Competitiveness, & Enhance Global Energy Security: Office of International Affairs

Emerging Technologies — **CMM Technology Development** — Established Technologies


CRITICAL MATERIALS COLLABORATIVE
U.S. DEPARTMENT OF ENERGY
Sponsoring Offices
OP
Office of Policy
MESC
Office of Manufacturing and Energy Supply Chains
NE
Office of Nuclear Energy
SETO
Solar Energy Technologies Office
OTT
Office of Technology Transitions
HFTO
Hydrogen & Fuel Cell Technologies Office
CMC Co-Chairs
ORS
Office of Resource Sustainability
FECM
Office of Fossil Energy and Carbon Management
Grant Bromhal
EERE
Office of Energy Efficiency and Renewable Energy
Helena Khazdozian
AMMTO
Advanced Materials & Manufacturing Technologies Office
OCM
Office of Carbon Management
VTO
Vehicle Technologies Office
LPO
Loan Programs Office
WETO
Wind Energy Technologies Office
OE
Office of Electricity
ARPA-E
Advanced Research Projects Agency-Energy
IA
Office of International Affairs
SC
Office of Science
GTO
Geothermal Technologies Office

Member Structure

DOE Sponsoring Offices

Other Federal Agencies

RD&D Awardees Through
CMC Funding Opportunities

Funding Opportunities

The CMC has already started to coordinate RD&D programs and funding opportunities across DOE, engaging the membership and supporting investments across the entire innovation pipeline.

These investments represent the first of many DOE programs to be coordinated through the CMC.

FECM's FOA for three projects supporting the design and construction of facilities that produce rare earth elements and other critical minerals and materials from coal-based resources.

FECM's Critical Materials FOA to advance cost-effective, environmentally responsible processes to produce and refine critical minerals and materials in the U.S.

FECM's FOA for a rare earth element demonstration facility to bring critical mineral supply chains to the U.S. and reduce reliance on competitors.

EERE's Critical Materials Accelerator Program to prototype and mature new materials, technologies, and processes that address critical materials challenges.

EERE's E-SCRAP Prize to substantially increase the production and use of critical materials recovered from electronic scrap.

A joint FOA between AMMTO and the Geothermal Technologies Office on researching alternative ways to extract lithium.

FECM's FOA supporting advanced processing of critical minerals and materials for industrial and manufacturing applications.

EERE's Wind Turbine Materials Recycling Prize to develop cost-effective and sustainable recycling industry for fiber-reinforced composites and rare earth elements in wind turbines.

FECM's CORE-CM Initiative FOA to develop regional partnerships supporting the domestic production of critical minerals and materials.

Not all CMC funding opportunities are shown here. View additional funding opportunities at our website.

Get Connected

Become an RD&D Awardee

Join the CMC by being funded through a CMC-coordinated opportunity. Funding opportunities will be continually announced on the CMC website.

Subscribe to the Quarterly Newsletter

Join our newsletter list to stay in the know on all-things CMC, new funding opportunities, engagement activities, events, resources, and more.

Reach Out

Email: cmc@hq.doe.gov

Website: energy.gov/cmm/critical-materials-collaborative

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